Lymph Notes

in Pediatrics

Index

Growth and development

1. Short stature.

Definition:

Height below the 5th percentile for age and sex

1. *Normal variants (90%)*

	Familial (genetic)	**Constitutional delay of growth and puberty**
Parents	Short	Normal height
Growth velocity	Normal (short since birth)	Normal length at birth → short within 2 years → transient decelerated growth
Bone age	Normal	Delayed
Puberty	Normal	Delayed
Adult eight	Short adult height	Normal adult height
Treatment	GH may be useful	Reassurance

2. *Pathological (10%)*

A. *Endocrinal causes: (bone age markedly delayed)*

a. <u>Growth hormone deficiency</u>

- Panhypopituitarism
- Isolated GH deficiency
- 2ry to craniopharyngeoma: (visual field assessment and CT brain are important to exclude it.
- Laron syndrome: IGF1 deficiency.

b. <u>Hypothyroidism: (congenital/ autoimmune thyroiditis)</u>

c. <u>Hypoparathyroidism</u>

d. <u>Adrenal gland:</u>

- Adrenal insufficiency
- Cushing syndrome
- Corticosteroid therapy: a prolonged high dose (equivalent to 5mg prednisone / day or more leads to short stature (Risk is reduced by alternate day therapy)

B. *Genetic and chromosomal disorders:*

a. Down syndrome
b. Turner syndrome
c. Silver Russel syndrome
d. Skeletal dysplasia e.g. achondroplasia
e. Mucopolysaccharidosis

C. *Severe IUGR:*

Some may show persistently restricted growth (GH therapy)

D. Nutritional starvation:

- Nutritional starvation diminishes synthesis of growth factors
- Weight is more involved than the height

E. Social short stature:

Psychological deprivation: Disturbed child mother or family relation → reduce growth hormone release

F. Severe systemic diseases in infancy and childhood:

- Chronic diseases (renal failure – LCF - malabsorption – hemolytic anemia)
- Chronic infections: Tuberculosis – bilhariziasis

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2. Macrocephaly.

Definition:

Head circumference > 95th percentile for age & sex

Etiology:

A. Cranial causes:

- Familial large head.
- Chronic hemolytic anemia.
- Rickets
- Achondroplasia

B. Intracranial causes (causes of increased intracranial tension)

- Hydrocephalus
- Subdural hematoma
- Subdural effusion
- Brain tumors
- Neurofibromatosis
- Cerebral gigantism (Sotos syndrome)
- CNS storage disorders, e.g. mucopolysaccharidosis (Ruler's syndrome)

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3. Microcephaly.

➔ *Etiology:*

3. True microcephaly:

A. Primary (genetic):

a. Familial (autosomal recessive).
b. Autosomal dominant.
c. Syndromes: Down (trisomy 21), Edwards (trisomy 18), Cri du chat (deletion of tip of short arm of chromosome no. 5).

B. Secondary (non genetic or acquired):

Destructive process affecting the brain during fetal & early infancy.

i. <u>Prenatal causes:</u>

a. Congenital infection: as rubella & cytomegalovirus (TORCH).
b. Irradiation.
c. Toxins.
d. Drugs: fetal alcohol syndrome, fetal hydantoin syndrome.

ii. **<u>Natal causes:</u>**

Hypoxic ischemic injury.

iii. **<u>Postnatal causes:</u>**

a. Kernicterus.
b. CNS infection: meningitis-encephalitis.
c. Intracranial hemorrhage.

4. *Craniostenosis (craniosynostosis):*

Premature closure of skull sutures.
When generalized (multiple sutures), it leads to microcephaly with motor & mental retardation.

A. Isolated congenital defect.

B. Genetic syndromes: as Crouzon syndrome (+ exophthalmos).

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4. Tall stature.

Etiology:

Proportionate tall stature	*Disproportionate tall stature*
Familial tall stature	Marfan syndrome
Exogenous obesity	Homocystinuria
Precocious puberty	Klinefelter
GH excess (Gigangtism)	Cerebral gigantism (Sotos syndrome)

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5. DD of delayed walking.

1. Nutritional:
   - PEM
   - Rickets
2. Chromosomal
   - Down
   - Prader Willi
3. Endocrinal:
   - Cretinism
4. Neurological:
   - CP
   - Hydrocephalus
   - Werdnig Hoffman
5. Skeletal:
   - Osteogenesis imperfecta
6. Environmental:
   - Lack of training
7. Familial / normal variant
8. Sensory:
   - Interference with perception of movement

Nutrition

1. DD of kwashiorkor.

1. From other causes of generalized edema (cardiac, hepatic renal & allergic)
2. From napkin dermatitis & pellagra
3. From other causes of immunodeficiency

2. DD of failure to thrive (secondary marasmus).

➔ *Definition:*

Hight or weight less than 3rd percentile for age

➔ *Causes:*

1. *Inadequate intake:*
   a. Non-organic (nutritional):
      i. Decreased food:
         - Causes of marasmus
         - Difficult child
         - Feeding disorders (لما يكبر)
      ii. Psychological depression
         - Maternal depression
         - Low education
         - Child abuse
   b. Organic (non nutritional):
      - CP
      - Cleft lip and palate
      - Esophageal stricture (corrosive)
      - Congenital pyloric stenosis (CHPS)
2. *Loss of nutrients:*
   - Vomiting
   - Diarrhea
5. *Malabsorption:*
   - Celiac and cystic fibrosis
6. *Poor utilization:*
   - Down syndrome
   - IUGR and extreme prematurity
   - Inborn error of metabolism
   - System failure (liver)
7. *Increased requirements:*
   - Thyrotoxicosis
   - Malignancy
   - Congenital heart disease
   - Chronic infections (TB,UTI)
   - DM

Infection

1. **Short febrile illness.**
    - More common and serious
    - Less than 7 days

A) Focal infection:

1. Simple Focal infections:

a. **Respiratory** (URTI is the most common)
Nasopharyngitis, otitis media, sinusitis, bronchitis

b. **Digestive:** stomatitis, gastroenteritis

c. **Urinary:** Urinary tract infection "cystitis"

d. **Cutaneous:** cellulitis, abscess

- Detailed examination and history can discover the focus
- ENT examination is essential " otitis media is common "

2. Serious Focal infection:

a. **Meningitis:** disturbed consciousness, convulsions, meningeal irritation
Increased intracranial tension " headache, projectile vomiting, blurred vision "

b. **Pneumonia:** Respiratory Distress, Rales, Bronchial breathing

c. **Pyelonephritis:** loin tenderness or swelling, turbid urine or hematuria

d. **Peritonitis:** abdominal distension and generalized tenderness

e. **Osteomyelitis or arthritis:** tenderness, swelling, limitation of movement

N.B.

Early focal infection "first 24 or 48 hours", the focus may not be evident (Re-examination after 24 or 48 hours reveals the focus in up to 40% of cases)

B) Simple fever "Non –specific fever"

Clinical diagnosis depends on:

1. Degree of fever
2. History: ***A***ppetite – ***A***ctivity - ***R***eaction to parents
3. Examination: ***A***ppearance – ***A***lertness - ***R***esponse to social stimuli

i. Viremia:

- **Fever**: low grade
- **History and examination**: Normal
- **Investigations**: not needed
- **Treatment:**
    - Antipyretic
    - Re-examination after 24-48 h. a focus may be found

ii. Bacteremia:

- **Fever:** High grade
- **History and examination:** sick
- **Investigations:**
    1. CBC: leukocytosis >15000/mm3
    2. Band cell >10%

3. CRP: elevated to 20-30 mg/l
4. ESR >20 in 1st hour

- **Treatment:**
  - Oral broad-spectrum antibiotic (ampicillin or amoxicillin)
  - Re-examination after 24-48 hours

iii. Septicemia:

See emergency.

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2. Prolonged fever

➔ Duration more than 10-14 days

➔ *Etiology:*

A) Infection "most common"

1. Bacterial:

➢ *Systemic infection*

a. Salmonellosis
b. Brucellosis
c. Tuberculosis
d. Listeriosis

➢ *Hidden focal*

a. Abdominal abcess
b. Endocarditis
c. Pyelonephritis
d. Osteomyelitis

2. Viral:

a. Infectious mononucleosis
b. CMV
c. HIV
d. HCV

3. Parasitic:

a. Malaria
b. Toxoplasmosis
c. Visceral larva migrans

B) Autoimmune

1. Rheumatic fever
2. Juvenile rheumatoid arthritis
3. SLE

C) Malignancy

1. leukemia
2. lymphoma
3. Neuroblastoma

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3. Fever with purpuric rash.

1. *Serious bacterial infection (20%):*
   a. **Meningococcal septicemia** is the **most common.**
   b. Hemophilus influenza type b.
   c. Staphylococci.
   d. Listeria.
2. *Viral infections (80%):*
   a. Enterovirus infection esp. **echovirus type 9** (**most common**).
   b. Hemorrhagic fevers: **B**lack measles, **C**ytomegalovirus and **D**engue fever

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4. D.D of parotid swelling

A. Mumps:
- **Pain** at (one or both sides) of parotid around the ear aggravated by chewing of mandible.
- **Swelling:**
  - elevated ear lobule
  - behind angle of mandible
  - painful and tender
  - peak at 3 days, disappears over 3-7
  - hyperemia of stenosed duct

B. Cervical lymphadenitis:
- not elevated lobule
- better felt than seen
- firm, multiple

C. Other parotitis causes:
- suppurative parotitis: unilateral, high grade fever, severe pain.
- recurrent parotitis
- calculus duct obstruction: intermittent swelling
- Micklucz' syndrome: dry mouth, bilateral parotid, lacrimal swelling

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5. Maculopapular rash.

1- Common exanthems:
- measles
- German measles
- roseola infantum
- scarlet fever

2- Other infections: rash is sometimes present:
- Typhoid fever
- Infectious mononucleosis
- Enteroviral infections
- Parvovirus B19 (slapped cheeks)
- Lyme disease (caused by borrelia, transmitted by ticks)
- Erythema migrans

3- *Rheumatic diseases:*
   - Juvenile idiopathic arthritis
   - SLE
   - Dermatomyositis
   - Kawasaki disease
4- *Skin & allergic diseases:*
   - Sweat rash: fine papules on the neck and trunk.
   - Urticarial rash: wheals with itching
   - Drug rash

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6. Vesiculopustular rash.

1. *Infections:*
   a. Chicken pox & shingles.
   b. Herpes simplex.
   c. Coxsachie (hand and foot syndrome).
   d. Scarlet fever (bacterial).
   e. Impetigo.
2. *Skin and allergic diseases:*
   a. Erythema multiforme (Steven Johnson syndrome).
   b. Papular urticaria.

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7. DD of diphtheria.

1. *Faucial diphtheria:*
   Causes of tonsillar membrane: Follicular tonsillitis – infectious mononucleosis – Agranulocytosis – Leukemia
2. *Laryngeal diphtheria:*
   Other causes of stridor

Emergency

1. **Causes of stridor.**

i. *Infections (croup):*

1. *Acute laryngitis.*
2. *Acute laryngo-tracheo-bronchitis.*
3. *Bacterial tracheitis.*
   High fever with toxemia.
4. *Acute epiglottitis*
   Acute life-threatening illness.
5. *Spasmodic laryngitis.*

ii. *Other causes:*

1. *Laryngospasm:*
   As in hypocalcemic tetany.
2. *Laryngomalacia:*
   Recurrent or continuous stridor since birth.
3. *Laryngeal edema:*
   - With severe allergy.
   - Following extubation.
4. *Laryngeal foreign body (peanut or toy):*
   Sudden onset of cough.
5. *Laryngeal compression:*
   Retropharyngeal hematoma or abscess.
6. *Laryngeal diphtheria, measles or infectious mononucleosis.*

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2. Causes of respiratory failure.

	Type I (Lung failure or oxygenation failure)	**Type II (Pump failure or hypercapnic failure)**
Causes	**Respiratory distress causes:** - Croup. - Epiglottitis. - **A**spiration. - **A**cute severe asthma. - **B**ronchiolitis. - **B**ronchiolitis obliterans. - **B**roncho-pulmonary dysplasia. - **P**leural effusion. - **P**neumothorax. - **P**neumonia. - **P**ulmonary edema. - Adult respiratory distress syndrome (**ARDS**). - Neonatal respiratory distress syndrome (**NRDS**). - Lung collapse.	**Respiratory depression:** - CNS infection. - Intracranial hemorrhage. - CNS depressants as morphine. **Respiratory muscle paralysis:** - Guillain-Barre syndrome. - Poliomyelitis. - Myasthenia. - Werdnig-Hoffmann disease. **Respiratory muscle fatigue (severe type I failure):** - Severe pneumonia. - Severe RDS.
Defect	Hypoxemia.	Hypoventilation (hypercarbia).
Clinical picture	Grades of respiratory distress (see below).	Shallow irregular breathing or apnea.
ABG	- Low PO_2. - Metabolic acidosis.	- High PCO_2. - Respiratory acidosis.
Treatment	Oxygen therapy (free flow or with positive pressure ventilation according to ABG).	Mechanical ventilation (with or without oxygen).

3. Causes of respiratory distress.

1. Pulmonary or airway causes (see causes of type I failure).
2. Heart failure.
3. Metabolic acidosis.
4. Severe anemia.

4. Causes of coma.

	Primary or structural	Secondary or metabolic
Lesion	Focal or lateralizing (except infection)	Diffuse
Causes	1. Head trauma. 2. CNS infection. 3. Vascular (infarction, hemorrhage). 4. Tumor. 5. Post-epileptic.	**1. Hypoxic encephalopathy:** - Respiratory failure. - Heart failure. - Shock. **2. Endogenous encephalopathy:** - Renal failure. - Liver cell failure. - DKA. - Acute hypertension. **3. Exogenous encephalopathy:** Exogenous poisons (organophosphorus compounds or drugs as paracetamol).
Diagnosis	CT scan & MRI.	Lab. investigations.
Response	Not dramatic, if any.	Responsive to treatment, if diagnosed early.

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5. Causes (types) of shock.

SHOCK

1. ***H****ypovolemic shock (most common):*
   a. Severe dehydration due to:
      - Gastro-enteritis.
      - Vomiting.
      - Diabetic keto-acidosis.
      - Diminished intake.
   b. Acute hemorrhage (internal or external).
   c. Severe burn.
2. *Distributive (**K**inetic) shock:*
   Loss of vascular resistance and excess vasodilation.
   a. Sepsis.
   b. Anaphylaxis (drugs).
   c. Neurogenic (spinal cord trauma).
3. ***C****ardiogenic shock:*
   a. Severe acute heart failure.
   b. Sepsis.

c. Any advanced shock.

4. ***O****bstructive shock:*

Mechanical obstruction of cardiac blood flow.

a. Tension pneumothorax.
b. Cardiac tamponade.

5. ***S****eptic shock:*

- Mixed form of shock, but it is mainly a distributive shock.
- Results from activation of systemic inflammatory response (from bacterial or viral infection).

Hemodynamic parameters in different types of shock:

Type of shock	SVR	CVP	Cardiac output
Hypovolemic	↑	↓	↓
Cardiogenic	↑	↑	↓
Distributive	↓	↓	↑

– SVR = systemic vascular resistance.
– CVP = central venous pressure.

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6. Metabolic acidosis.

A. Loss of alkali:

1. Renal tubular acidosis
2. Diarrhea

B. Overproduction of acids:

1. Arrest
2. Shock (severe hemorrhage – severe dehydration)
3. Severe pneumonia: pneumonia affect O_2 exchange more than CO_2 exchange
   - In all of the above: hypoxia leads to anaerobic glycolysis with lactic acidosis
4. D.K.A (keto-acids)
5. Salicylates (exogenous acids aspirin): early hyperventilation with respiratory alkalosis, later on metabolic acidosis

C. Renal failure:

Reduced production of HCO_3 and reduced elimination of acids in urine

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Neonatology

1. Preterm babies.

Etiology:

1. Maternal chronic diseases
2. Maternal chronic infections
3. Uterine anomaly
4. Cervical separation
5. Placental separation
6. Premature rupture of membranes
7. Multiple pregnancy
8. Fetal hydrops
9. Fetal distress
10. Fetal anomalies

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2. Large for gestational age babies (LGA).

Causes:

1. Constitutional LGA babies
2. Infants of diabetic mothers
3. Hydrops fetalis

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3. Small for gestational age babies (SGA).

Etiology:

1. Chronic maternal diseases
2. Decreased placental flow and oxygenation: hypertension, preeclampsia collagen vascular diseases, multiple gestations
3. Placental factors: vascular malformations, infractions, and abruption
4. Fetal factors: chromosomal abnormalities & congenital infections.

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4. Neonatal respiratory distress.

A. Pulmonary

- Neonatal respiratory distress syndrome
- Meconium aspiration
- Transient tachypnea of the newborn
- Pneumonia
- Aspiration pneumonia (meconium, secretions, or milk)
- Congenital lobar emphysema
- Massive pulmonary hemorrhage
- Broncho-pulmonary dysplasia
- Diaphragmatic hernia
- Pneumo-mediastinum

- Pneumo-pericardium

B. Extra pulmonary

a. <u>Airway and chest wall</u>

- Choanal atresia (bilateral)
- Pierre-Robin syndrome
- Laryngomalacia
- Trachea-esophageal fistula
- Chest wall disorders: thoracic dystrophy
- Myasthenia gravis

b. <u>Cardiac:</u>

- Heart failure
- Persistent fetal circulation

c. <u>Central (Cerebral irritation):</u>

- Cerebral hypoxia or asphyxia
- Intracranial hemorrhage
- Meningitis

d. <u>Metabolic</u>

- Acidosis
- Hypothermia
- Hypoglycemia
- Hyperthermia

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5. Neonatal apnea.

Causes:

1. <u>Prematurity</u>

2. <u>2ry to:</u>

- Metabolic hypoglycemia, hypocalcemia
- Temperature instability: hypothermia or hyperthermia
- Maternal drug intake e.g. magnesium sulfate or intra-partum sedatives
- Neonatal sepsis
- Intracranial hemorrhage
- Brain hypoxia e.g. RDS, (HIE)
- Neonatal seizures
- Gastro-esophageal reflux, aspiration
- With interventions e.g. suction or ETT insertion

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6. Discuss Etiology, patterns & DD of neonatal seizures.

➔ *Etiology:*

See before.

➔ *Patterns:*

A. Tonic:

- Mimic decelerate/decorticate posturing.
- Sustained posture of limbs/trunk.

- Only 30% show EEG abnormalities.

B. Myoclonic:

- Rapid isolated muscle jerking.

C. Clonic:

- One limb or side jerking rhythmic at 1-4 times/second rate.

D. Subtle:

- Eye: staring, deviation, blinking.
- Buccal/lingual: chew, suck, lip smacking.
- Limbs: cycling, row, swim.
- Systemic: apnea, BP alterations.

➔ *DD:*

A. Jitteriness:

- No associated eye motion.
- Stimulated by sudden movement or noise.
- Symmetrical rapid movement of hand.

B. Bilateral neonatal sleep myoclonus:

- Bilateral/unilateral jerking.
- No stimulus.
- Occurs during sleep.
- Involve trunk.

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7. Hypothermia (neonatal cold injury).

Causes:

1. Cold environment, sometimes due to negligence or abuse
2. Inadequate drying after birth
3. Inadequate clothing
4. Sepsis
5. Prematurity due to:
   - Immaturity of the heat regulating center
   - Small muscle bulk
   - Large surface area of skin
   - Diminished fat insulation
   - Diminished intake
   - Associated illness

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8. Neonatal bleeding

Causes:

1. *Deficient clotting factors:*
   a. Transient deficiencies of vitamin K-dependent factors (hemorrhagic disease of the newborn)
   b. Acquired with: DIC and liver cell failure
   c. Inherited abnormalities of clotting factors: hemophilia A and B

2. *Low platelet count (thrombocytopenia):*
   a. **<u>Increased destruction in the peripheral circulation:</u>**
      - Neonatal immune thrombocytopenia:
        - Isoimmune thrombocytopenia
        - Maternal immune thrombocytopenic purpura
        - Maternal lupus, drugs
      - Non-immune thrombocytopenia
        - Disseminated intravascular coagulopathy (DIC)
        - Necrotizing enterocolitis
   b. **<u>Decreased production in bone marrow: in Fanconi anemia</u>**
3. *Other causes of bleeding:*
   a. Vascular: Hypoxia, acidosis and prematurity (CNS or pulmonary hemorrhage)
   b. Obstetric trauma as rupture of liver or spleen and cephalhematoma

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Cardiology

1. Differential diagnosis of rheumatic fever.

1. *Arthritis:*
   From other causes of arthritis (see rheumatology).
2. *Carditis:*
   From other causes of carditis (e.g. viral myocarditis).
3. *Chorea:*
   From other causes of chorea (e.g. drug-induced chorea).
4. *Other causes of heart failure* as congenital heart diseases & myocarditis.

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2. Pediatric hypertension.

Causes:

1. Renal: chronic pyelonephritis, glomerular disease, reno-vascular disease
2. Aortic coarctation
3. Essential hypertension
4. Iatrogenic (steroid-induced)
5. Endocrine causes (Cushing, pheochromocytoma)
6. Increased ICP
7. Pain

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3. Acyanotic vs cyanotic heart diseases.

Non cyanotic (80%)	**Cyanotic (20%)**
Maybe asymptomatic.	Onset of cyanosis is variable.
Clinical differentiation is possible.	Clinical differentiation is impossible.
Investigations are needed.	Investigations are essential.
Some may not need surgery.	Surgery is inevitable.
With left to right shunt: VSD (30%). PDA (5-10%). ASD (5-10%). A-V canal (2%).	**With decreased pulmonary flow:** Fallot tetralogy (5%). Fallot like conditions. Pulmonary atresia.
With obstructive lesion: Pulmonary stenosis (7%). Coarctation of aorta (5%). Aortic stenosis (5%).	**With increased pulmonary flow:** TGA (5%). Truncus arteriosus. Single ventricle. Hypoplastic left ventricle.

Hematology

1. **Causes (classification) of anemia:**

1. *Decreased RBCs production*
   a. **Dyshematopoietic anemia**
      - Iron deficiency anemia
      - Folic acid & vitamin B12 (megaloblastic anemia)
      - Vitamin C and protein deficiency
      - Cu & vitamin B6 deficiency

   b. **Bone marrow failure**
      - **Pure red cell aplasia**
        - Inherited: Shwachman- Diamond syndrome
        - AR-Associated exocrine pancreatic failure
        - Acquired with (Parvo v. B19)
      - **Aplastic anemia (→ pancytopenia)**
        - Congenital → e.g. Fanconi anemia
        - Acquired → idiopathic or secondary to infections (hepatitis) – Toxins (insecticide) – irradiation
      - **Infiltration of bone marrow:**

Malignant cell e.g. leukemia or metabolic cells as Gaucher cells

2. *Increased RBCs destruction:*
   a. **Hemolysis**

Corpuscular defects [hereditary] (C)	**Extra corpuscular (extrinsic) [acquired] (A)**	
Membrane defect: Spherocytosis Elliptocytosis Enzyme defect: G6PD deficiency (A) Pyruvate kinase def. Hemoglobin defect: Quantitative: Thalassemia Qualitative: sickle cell anemia	Immunologic disorders: Coombs' +ve) Rh & ABO incompatibility Autoimmune hemolytic anemia Idiopathic Infections (e.g. EBV, CMV & Mycoplasma pneumonia) Drug-induced (e.g. methyldopa, penicillin) Collagen vascular diseases (SLE)	Non immunologic disorders: Sepsis Malaria Wilson disease Artificial valve DIC Hemolytic uremic syndrome

   b. **Hypersplenism: leading to pancytopenia**

3. *Blood loss (hemorrhagic anemia)*
   a. Acute: trauma, accidents, surgery –Varices- operative (circumcision in hemophilics)
   b. Chronic: feto-maternal transfusion- Ankylostoma- Bilhariziasis- Meckel's diverticulum- cow milk allergy

2. Microcytic hypochromic anemia:

Disease	*Clinical picture*
Iron deficiency anemia	Pica.
Beta-thalassemia trait	No response to iron.
Chronic infection	Picture of infection.
Sideroblastic anemia	Improve with vitamin B6.
Lead poisoning	Manifestations of lead toxicity.

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3. Acute hemolysis:

Disease	*Specific clinical picture*	*Specific investigation*
G6PD deficiency:	History of 1st intake of beans.	Heinz bodies. G6PD assay.
Autoimmune hemolytic anemia (AIHA):	- Drug intake. - Infection 2 weeks ago. - Associated arthritis or skin rash.	+ve Coomb's test.
Hemolytic uremic syndrome (HIS):	- History of severe gastroenteritis. - Acute renal failure.	- Thrombocytopenia. - Elevated renal function test levels.
Infection (malaria):	- Travelling to endemic area. - Pattern of fever.	Blood film is diagnostic.
Sepsis:	- Toxic patient (septicemia). - Purpuric eruption.	- CBC: leukocytosis, shift to left. - High ESR & CRP.

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4. Causes of purpura:

i. Thrombocytopenic purpura: (low platelets)

1. <u>Increased platelet destruction (Normal megakaryocytes)</u>

a. <u>Immune:</u>

- Idiopathic throbocyopenic purpura (ITP)
- Neonatal:
- Isoimmune thrombocytopenic
- Maternal ITP
- Systemic lupus erythematosus

b. <u>Non immune:</u>

- DIC
- Hemolytic uremic syndrome
- Hypersplenism
- Drug induced

2. <u>Decreased platelet production (low magakaryocytes)</u>

a. <u>Congenital:</u>

- Thrombocytopenic with absent radius (TAR syndrome)
- Constitutional pancytopenia (Fanconi anemia)

- Thrombopoietin deficiency

b. <u>Acquired:</u>

- Megakaryocytic aplasia (idiopathic or 2ry to drugs)
- Aplastic anemia (idiopathic- drugs –toxin – irradiation)
- Marrow infiltration (leukemia – lymphoma – metabolic disorders)

ii. Non- thrombocytopenic purpura: (Normal platelets)

1. <u>Platelet dysfunction:</u>

- Drugs as aspirin
- Uremia
- Inherited abnormal platelets e.g. giant platelet syndrome

2. <u>Vascular purpura:</u>

- Infections as meningococeemia
- Vitamin C deficiency (Scurvy)
- Inherited: Ehlar Danlos syndrome – Marfan syndrome
- Immune vasculitis (HSP)

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5. Differential diagnosis of ITP:

1) Aplastic anemia:

Pancytopenia & decreased all precursors in bone marrow.

2) Acute leukemia:

Hepatosplenomegaly & infiltration of bone marrow by blast cells.

3) Other causes of thrombocytopenia (discuss).

<u>For more details:</u>

	ITP	*Aplastic anemia*	*Leukemia*
History:	Fever 2 weeks before onset of purpura.	- History of exposure to bone marrow depressant drugs or viral infection. - The cause maybe idiopathic. - Fever (infections). - Repeated blood transfusion.	- Prolonged fever. - Arthralgia or arthritis. - Recent significant weight loss.
Examination:	- Good general condition. - No anemia except in severe blood loss. - No Organomegaly.	- Bad general condition. - Marked pallor. - No Organomegaly.	- Bad general condition. - Pallor. -Hepatosplenomegaly & lymphadenopathy.
Investigations:	<u>Blood picture:</u> Thrombocytopenia.	Pancytopenia.	Thrombocytopenia, anemia. WBCs: normal, increased or decreased.

	Anti-platelet antibodies (+ve in 60%).		
	Bone marrow examination: normal or increased megakaryocytes with defective budding.	Bone marrow aplasia.	Infiltration by blast cells.

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6. DD of hemophilia in general:

1. Acquired coagulation defects as liver failure: clinical & laboratory evidence of LCF.
2. Disseminated intravascular coagulation (DIC): critically-ill patient, fibrin degradation products (FDPs) in blood.

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7. Differential diagnosis for children with anemia and splenomegaly.

1. Chronic hemolytic anemia: (but SCA patients will develop auto splenectomy + crisis)
   - Thalassemia
   - spherocytosis
2. Leukemia.
3. Gaucher disease.
4. Iron deficiency anemia (splenomegaly in 15% of cases).
   - Bilharziasis (portal HTN & hypersplenism + bleeding)
5. RH incompatibility (hemolytic disease of the newborn)
6. Wilson disease (cirrhosis → portal HTN → splenomegaly)
7. Malaria.
8. Sepsis.
9. Causes of portal HTN leading to splenomegaly → hypersplenism
10. Chronic autoimmune anemia (cirrhosis → portal HTN → splenomegaly)
11. Patients with cirrhosis:
    - Bleeding tendency → anemia
    - Portal HTN → splenomegaly

---

8. Generalized purpuric eruptions + recent blood transfusion + pallor:

A. With splenomegaly:

- Complicated Chronic hemolytic anemia (with megaloblastic crisis _ aplastic crisis – hyperhaemolytic crisis [associated G6PD def] - hypersplenism)
- Leukemia or lymphoma
- Storage disease

B. No splenomegaly:

- Active bleeding in: ITP – Henoch Schonlein purpura – leukemia – TAR $
- Eban $
- Aplastic anemia (Fanconi anemia)

Respiration

1. DD of wheezing in infancy and childhood.
DD of asthma.

A. Acute non recurrent wheezing (wheezing for the 1st time):

1. Acute bronchiolitis (**commonest** cause of wheezing in **infants**).
2. Severe bronchopneumonia with generalized obstructive emphysema.

B. Chronic persistent or recurrent wheezing:

1. Bronchial asthma (**commonest** cause of wheezing in **children**):
   Never diagnose asthma from the 1st attack.
2. Chronic or recurrent infections:
   - Cystic fibrosis.
   - Immunodeficiency.
3. Recurrent aspiration as in GERD.
4. Foreign body inhalation:
   - Sudden onset of wheezing.
   - No response to bronchodilators.
5. **C**ongenital anomalies.
6. **C**ompression of airways:
   - Cysts.
   - Enlarged LNs.
   - Tumors.

---

2. DD of cough.

➔ *Definition:*

- The most common symptom of respiratory disease.
- Caused by irritation of nerve receptors in pharynx, larynx, trachea and bronchi.

➔ *Etiology:*

1. Acute cough (duration less than 2 weeks):

Without respiratory distress:

a. Acute bronchitis.
b. Acute laryngitis.
c. Acute sinusitis.

With respiratory distress:

a. Acute bronchiolitis.
b. Pneumonia.
c. Acute asthmatic attack.

2. Prolonged cough (duration between 2 weeks and 2 months):

a. Complicated bronchitis:
   - Bacterial bronchitis.
   - Segmental collapse.
   - Pneumonia.

b. Sinusitis (due to postnasal discharge).
c. Pertussis (whooping cough) & pertussis-like illness.

3. *Chronic cough (duration more than 2 months):*
   a. Chronic infections:
      – Pulmonary tuberculosis.
      – Bronchiectasis.
   b. Chronic or persistent asthma.
   c. Recurrent aspiration.

---

3. DD of pertussis (whooping cough).

Adenovirus infection (pertussis-like illness):

- Less marked lymphocytosis.
- Vaccinated child.

---

4. DD of recurrent chest infection

➔ *Symptoms:*

- Chronic wheezy chest
- Chronic cough (except muscular)

➔ *Causes:*

1. Cystic fibrosis
2. Immotile cilia syndrome
3. Cardiac cases
4. Immunodeficiency
5. Recurrent aspiration:
   - GERD
   - TEF
   - CP

9. Muscular:
   - Down
   - Duchenne
   - Rickets

---

5. Indications of corticosteroids in TB.

1. **A**llergy
2. **A**scites
3. **B**ronchial
4. **B**rain
5. **C**ervical LN
6. **D**issemination

---

6. Pneumonia organisms based on age

A. Neonates: (same causes as neonatal sepsis)

1. GBS (commonest)
2. Chlamydia
3. Listeria
4. Enteric bacteria (intrauterine and postnatal)

B. Infant:

1. RSV (commonest of all)
2. Pneumococci (commonest bacteria)

C. School age:

1. Mycoplasma (commonest) → mainly present with hemolytic anemia.

---

7. Pneumonia organisms based on type of patient.

A. Hospitalized:

1. Pseudomonas
2. Candida
3. Staph
4. CONS

B. Cystic fibrosis:

3. Aspergillus
4. Pseudomonas
5. Staph
6. Hemophilus

B. Immunocompromised:

1. TB
2. Aspergillus

GIT

1. DD of acute abdominal pain:

A. Acute abdominal infection:

(Diagnosis: fever-systemic manifestation + the site of pain and tenderness)

1. Streptococcal pharyngitis
2. Acute gastroenteritis
3. Acute hepatitis
4. Acute appendicitis
5. Acute pyelonephritis
6. Acute pancreatitis
7. Acute peritonitis

B. Acute medical conditions:

1. Henoch-Schonlein vasculitis
2. Sickle cell anemia
3. Right lower lobe pneumonia
4. Acute rheumatic fever
5. Diabetic ketoacidosis
6. Drug intoxication
7. Lead poisoning

C. Surgical causes:

(Multiple Air-fluid level/ Bilious vomiting/ complete Constipation/ severe Distention)

1. Acute intestinal obstruction:

a. Incarcerated inguinal hernia
b. Intussusception (imp.)
c. Volvulus
d. Impacted fecal masses
e. Round worm masses

2. Other surgical causes of acute abdomen:

a. Inflamed Meckel's Diverticulum
b. Acute appendicitis
c. Renal stone
d. Gall bladder stone

2. Recurrent abdominal pain:

	Dysfunctional recurrent abdominal pain "nonspecific" or "psychogenic"	**Organic recurrent abdominal pain**
Definition	Pain that does not interfere with the child activity or general health	Pain that interrupt child normal activity and health
Incidence	>90%	Less than 10% of cases
Pain	Periumbilical, Non localized Vague, not severe Subsides spontaneously in less than 20 minutes	Localized away from umbilicus Severe Does not improves spontaneously
Association	No	Diarrhea- constipation- rectal- bleeding- hematuria- dysuria
Signs	Child appear healthy No mass or tenderness	Weight loss, anemia, weight loss Organomegaly or locl tenderness
Causes	Stressful events: loss of a parent, delivery of new sibling, school phobia Sympathy gaining Stimulate an adult with recurrent abdominal pain	Common causes: Parasitic infections: Giardiasis, amoebiasis Chronic constipation Bad selection of food Lactose intolerance (disaccharide) Chronic use of drugs Renal calculi Familial Mediterranean fever
Simple investigations	Normal	Abnormal
	Urine –stool- CBC – abdominal x ray	
Further inv.	Not needed	According to the clinical suspicious
Treatment	Reassurance	according

3. DD of vomiting in infancy:

A. *Dietetic errors:*
   1. Over feeding
   2. Excess carbohydrate in diet
   3. Irregular feeding or tight abdominal binder

B. *Infection:*
   1. Gastro-enteritis

2. Appendicitis
3. Urinary tract infection
4. Respiratory infection: otitis media, whooping cough or pneumonia
5. CNS infections: Meningitis, encephalitis or brain abscess

C. *Medical disorders:*

1. Celiac disease
2. Renal failure
3. Metabolic disease
4. Raised cranial tension
5. Diabetic ketoacidosis

D. *Intestinal obstruction:*

1. Intussusception
2. Volvulus
3. Adhesions
4. Strangulated inguinal hernia
5. Foreign body

---

4. Chronic abdominal masses:

1. *Hepatosplenomegaly (most common)*
2. *Renal and suprarenal masses:*

   Include: Wilms tumor, neuroblastoma, hydronephrosis, renal vein thrombosis, polycystic kidney disease and cystic dysplastic kidney

	Neuroblastoma	**Wilms tumor**
Origin	From the suprarenal	From the kidney
Onset	Below the age of 3 years	Around the age of 3 years
Mass site	Right or left upper quadrant mass	
Mass character	Hard with irregular surface Cross the middle line	Firm with a smooth surface Doesn't cross the midline
Other manifestation	Hepatomegaly- proptosis-anemia- subcutaneous nodules	Hematuria may be also present
Investigations	Bone marrow biopsy: neuroblastoma cells in 70% of cases.	CT abdomen and biopsy

3. *Pancreatic masses: (non mobile)*
   - Pancreatic pseudo cyst: (the most common pancreatic mass due to blunt trauma)
   - Pancreatic cystadenoma
   - Retention cyst
4. *Intestinal masses: (mobile midabdominal)*
   - Intestinal cysts: Mesenteric cyst & omental cyst
   - Intestinal lymphoma: may be very huge- associated with ascites
   - Intestinal inflammatory masses: Tuberculous mesenteric adenitis

5. *Retroperitoneal masses: (upper or lower abdomen)*
   Include teratoma, Rhabdomyosarcoma and lymphoma
6. *Masses in females:*
   - Ovarian cysts and tumors
   - Uterine causes
   - Tumors or hemato-metra
   - Vaginal: hematocolpos- tumors

---

5. DD of Diarrhea:

I. Acute diarrhea:

A. Infective diarrhea (gastroenteritis): most common cause of diarrhea in infant and children

1. Viral agents: Rotavirus-enterovirus-adenovirus……
2. Bacterial agents: campylobacter jujeni- shigella – salmonella- E. coli…….
3. Parasitic agents: Entamoeba histolitica and giardia lamblia

B. Non-infective diarrhea:

1. Dietetic diarrhea: overfeeding or inappropriate food for age
2. Drug- induced diarrhea: Antibiotics especially oral ampicillin
3. Parenteral diarrhea

II. Chronic diarrhea:

A. Chronic GIT infection:

1. TB
2. Giardiasis

B. Malabsorption syndromes

1. Cholestasis
2. Cystic fibrosis
3. Achlorhydria
4. Celiac disease
5. Short bowel syndrome
6. Lymphangectasia
7. Inflammatory bowel disease

III. Persistent diarrhea:

Causes:

1. Sugar intolerance.
2. Cow's milk protein allergy.
3. Overgrowth of bacteria in the upper small intestine.
4. Mucosal injury and atrophy.

---

6. DD of dehydration:

1. Gastroenteritis: isotonic dehydration.
2. DKA, high fever, hot environment, excessive sweating: hypertonic dehydration.
3. Prolonged diarrhea with compensation by drinking water or hypotonic solution: hypotonic dehydration.

Dehydration	*Isotonic*	*Hypertonic*	*Hypotonic*
Skin:	Poor turgor	Fair turgor	Very poor turgor
Eye:	Sunken	Mildly sunken	Very sunken
CNS:	Normal	Irritability & seizures	Lethargy & coma
Tongue:	Normal	Dry	Moist
Serum Na^+:	Normal	> 150	< 130

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7. Causes of hematemesis.

1. Swallowed blood
2. Esophagitis
3. Esophageal varices
4. Gastritis
5. Peptic ulcer
6. General causes of bleeding (ITP, hemophilia)

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8. Causes of bleeding per rectum.

<u>All of hematemesis +</u>

1. Necrotizing enterocolitis
2. Hemorrhagic disease of the newborn
3. Intussusception
4. Henoch shenolein purpura
5. Infection: amoebiasis – bacillary desentry
6. Inflammatory bowel disease
7. Anal fissure
8. Piles

Hepatology

1. Causes of hepatomegaly.

1. *Storage:*
   a. Fat: malnutrition, obesity, cystic fibrosis, metabolic liver disease.
   b. Lipid storage disease: Niemann pick or Gaucher disease.
   c. Glycogen: glycogen storage disease or infant of diabetic mother.
   d. Others: as alpha-1 antitrypsin deficiency, Wilson's disease, Schistosomiasis.
2. *Inflammation:*
   a. Acute or chronic viral hepatitis.
   b. Autoimmune hepatitis.
   c. Liver abscess.
3. *Infiltration:*
   a. Cystic: choledochal cyst.
   b. Malignant: hepatoblastoma or hepatocellular carcinoma.
   c. Metastases: neuroblastoma, histiocytosis, lymphoma, leukemia.
4. *Increased size of vascular spaces:*
   a. Budd-Chiari syndrome.
   b. Hepatic veno-occlusive disease (VOD).
   c. Right sided heart failure.
   d. Constrictive pericarditis.
   e. Restrictive cardiomyopathy.
5. *Increased size of biliary spaces:*
   a. Biliary obstruction: atresia.
   b. Congenital hepatic fibrosis.

---

2. Causes of hepatosplenomegaly.

1) *Neonatal period and early infancy:*
   Causes of cholestasis (enumerate).
2) *Late infancy and early childhood: (1-6 years)*
   a. Chronic hemolytic anemia (**M**editerranean): spleen is enlarged more.
   b. **M**etabolic diseases: Gaucher, Niemann-Pick, glycogen storage disease, mucopolysaccharidosis, ..
   c. **M**alignancy: acute leukemia (anemia, purpura & hepatosplenomegaly).
3) *Late childhood: (Above 6 years)*
   a. Chronic hepatitis and post-hepatitic cirrhosis.
   b. Metabolic: Wilson's disease.
   c. Bilharziasis.
   d. Autoimmune.

---

3. **Causes of hepatomegaly without portal hypertension.**
    1. Chronic myeloid leukemia
    2. Polycythemia
    3. Chronic malaria
    4. Typhoid fever
    5. Brucellosis
    6. Epstein par virus
    7. Amyloidosis, hemochromatosis
    8. Leukemias
    9. Lymphomas
    10. Glycogen storage and lipid storage diseases

Nephrology

1. DD of hematuria:

A. Non-glomerular:

1. Infection (bacterial-viral TB-schistosomiasis) (the commonest cause in children)
2. Trauma to genitalia, urinary tract or kidney
3. Tumors
4. Stones or hypercalciuria
5. Cytotoxic drugs
6. Exercise
7. Sickle cell disease or any cause of renal infarction
8. Renal vein thrombosis

B. Glomerular:

1. Acute glomerulonephritis
2. 2^{ry} nephritis as in: Henoch Schonlein purpura-polyarteritis nodosa- systemic lupus erythematosus-wegners granulomatosis
3. Familial nephritis as in Alport syndrome

C. Bleeding tendency:

1. ITP
2. Hemophilia
3. Hepatic failure

---

2. DD of polyuria:

Causes:

1. Diabetes mellitus
2. Hypervitaminosis D
3. Chronic renal failure
4. Diabetes insipidus
5. Renal tubular disorder
6. Psychogenic polydipsia

---

3. DD of oliguria:

Pathophysiology	*Clinical consequence*
Fluid retention	Edema & weight gain
Hypertension	Congestive heart failure-pulmonary edema
Retention of acidic wastes	Metabolic acidosis: Acidotic breathing (rapid and deep)
Water retention	Dilutional hyponatremia- dilutional hypocalcaemia
Retention of K^+	Hyperkalemia-arrhythmia
Retention of urea and creatinine (Azotemia)	Hyperosmolarity-uremic encephalopathy & coma-brain edema

4. Enuresis.

A. Primary causes:

1. Delay in maturation of bladder control has been postponed.
2. Genetic component: a family history is found in most children.
3. Children show deeper sleep and difficulties in waking
4. Loss of the normal nocturnal rise in anti-diuretics hormone (ADH) production.

B. Secondary causes:

1. DM
2. Diabetes insipidus
3. UTI
4. Stones

Neurology

1. DD of acute paralysis in children:

➔ *Etiology:*

1. *Spinal cord:*
   - Transverse myelitis.
   - Spinal cord trauma (as in road traffic accidents).
2. *Anterior horn cells:*
   - Poliomyelitis: **asymmetric ascending** paralysis.
3. *Peripheral nerves:*
   - Guillain-Barre syndrome (commonest cause): **symmetric ascending** paralysis.
   - Post-diphtheritic paralysis: **symmetric descending** paralysis.
4. *Neuromuscular:*
   - Botulism: **symmetric descending** paralysis.

---

2. Causes of mental retardation.

1. *Hereditary causes:*
   a. **Chromosomal disorders:**
      - Triosmy & monosomy e.g. Down syndrome - Edward syndrome
      - Sex chromosomal abnormality e.g. fragile x syndrome
      - Structural chromosomal abnormalities (deletion as in Brader Willi syndrome)

   b. **Genetic autosomal dominant micorcephaly**
      Autosomal dominant microcephaly

   c. **Inborn errors of metabolism:**
      - Amino acids e.g. phenyl ketonuria, tyrosinemia
      - Carbohydrate e.g. galactosemia

   d. **Neurodegenerative disorders:**
      Lysosomal disorder: Lipidosis & mucopolysaccharidosis

   e. **Neurocutaneous disorders:**
      Neurofibromatosis- Tuberous sclerosis- Sturge Weber syndrome
2. *Acquired causes:*
   a. **Prenatal causes**
      - Congenital malformations: hydrancephaly, porencephaly
      - Congenital infections: CMV, rubella, toxoplasmosis [TORCH]

   b. **Natal causes**
      - Hypoxic ischemic syndrome
      - Birth injuries as intracranial hemorrhage
      - Prematurity

   c. **Postnatal causes**
      - Trauma: accidental or non-accidental
      - Infections: Encephaliti, meningitis
      - Hypoxia: asphyxia, status epilepticus

- Metabolic and: Hypoglycemia & hypernatremia
- Endocrine: hypothyroidism
- Poisoning: lead poisoning

3. Seizures.

A. Epilepsy: (Recurrent seizures unrelated to fever or acute cerebral insult)

1. **<u>Idiopathic (80%)</u>**
2. **<u>Secondary (20%)</u>**
   - Cerebral deformation / malformation / vascular occlusion
   - Cerebral damage:
     - Congenital infections
     - Hypoxic- ischemic encephalopathy
     - Intraventricular hemorrhage
     - Cerebral tumor
   - Neurodegenerative disorders
   - Neurocutaneous syndromes
     - Tuberous scelorosis
     - Neurofibromatosis
     - Sturge Weber syndrome

B. Non-epileptic:

1. Febrile convulsions
2. Brain edema
3. Metabolic: hypoglycemia – hypocalcaemia- hypomagnesaemia- hyponatremia – hypernatremia
4. Head trauma
5. Meningitis and encephalitis
6. Poisons and toxins

---

4. Floppy infant.

Etiology:

1. *Central (Cerebral disorders)*
   - Atonic cerebral palsy
   - Cortical malformations
2. *Genetic syndrome*
   - Down syndrome
   - Prader-Willi syndrome: delayed development- delayed growth – obesity – hypotonia
3. *Neuromuscular disorders:*
   - Anterior horn cells: spinal muscle atrophy: Werding Hoffmann disease
   - Hereditary neuropathy
   - Neuromuscular junction: Transient neonatal myasthenia
   - Congenital myopathy

---

5. Progressive motor weakness.

Causes:

1. **<u>Brain causes:</u>**
   - Brain tumors and cysts
   - Degenerative brain diseases
2. **<u>Spinal cord causes:</u>**
   - Compression paraplegia (Spinal cord tumors, potts disease)
   - Degenerative diseases of the spinal cord
3. **<u>Nerve:</u>**

   Hereditary motor sensory neuropathy
4. **<u>Neuromuscular junction:</u>**

   Myasthenia gravis
5. **<u>Muscular causes:</u>**

   Muscular dystrophies (Duchenne muscular dystrophy is the most common cause of progressive weakness)

Allergy

Causes of utricaria:

1. **Idiopathic (common)**
2. **Infection**
3. **IgE-mediated**
   - Specific food- cow's milk, nuts (especially peanuts), fish
   - Blood products
   - Drugs –penicillin, cephalosporin
4. **Pharmacological**
   - Foods containing histamine –releasing substances, e.g. strawberries , egg white
   - Aspirin and other non-steroidal anti-inflammatory agents
5. **Physical agents: (heat, cold, pressure)**

Rheumatology

1. Arthritis.

A. Congenital:

Cystic fibrosis

B. Inflammatory:

1. infective:

a. acute:

- bacterial (pyogenic)
- viral (rubella, mumps)

b. chronic:

TB

2. non-infective:

a. post. Infectious:

- rheumatic
- reactive

b. collagen diseases:

- JIA
- SLE
- PAN

c. vasculitis:

- HSP
- Kawasaki

d. inflammatory bowel disease:

- crohn's
- ulcerative colitis

C. neoplastic:

1- leukemia

2- neuroblastoma

3- lymphoma

D. traumatic

E. others: hematological:

- SCA
- hemophilia

Endocrine

1. Precocious puberty.

Definition:

The appearance of 2ry sexual characters < 8 yr in girls and <9 yr in boys

Types and causes:

1. *Normal variant:*

a. <u>Premature thelarche:</u>

Early breast enlargement without other signs of puberty (Between 6 months & 3 years)

b. <u>Premature adrenarche: (premature pubarche)</u>

<u>Definition:</u>

Pubic hair develops before age of puberty

<u>Pathogenesis:</u>

Premature maturation of supra-renal androgens

<u>Investigations:</u>

To exclude central precocious puberty

c. <u>Gynecomastia in males:</u>

Breast enlargement in boys

It may be a sign of puberty, local causes or hormonal causes.

2. *Precocious puberty:*

A. <u>True precocious puberty (gonadotropin dependent)</u>

- Gonadotropin level is high (prebertal)
- Gonads are enlarged (testes in males and ovaries in females)
- Spermatogenesis occurs in males and ovulation occurs in females
- **<u>The main causes</u>**
  - Idiopathic: 80% of cases in females and 50% of cases in males
  - Organic causes: secondary to CNS tumors, hydrocephalus, trauma and radiotherapy. It is commoner in males.

B. <u>Pseudoprecocious puberty (gonadotropin independent)</u>

- Gonadotropin level is low (prepubertal)
- Gonads do not enlarge
- Spermatogenesis in males and ovulation in females do not occur
- **<u>Causes:</u>**
  - In females: ovarian tumors or excess estrogen
  - In males: testicular tumors or excess androgens

---

2. Delayed puberty.

Definition:

Delayed secondary sexual characters beyond 13 yr in girls & 14 yr in boys

Types and causes:

1. **<u>Constitutional delay of growth and puberty/ familial: (the commonest)</u>**
2. **<u>Low gonadotropin secretion (hypogonadotropic hypogonadism):</u>**
   - Systemic disease: as Cystic fibrosis, Crohn's disease, organ failure, Anorexia nervosa
   - Starvation, excess physical training
   - Hypothalamopituitary disorder
   - Pan-hypopituitarism
   - Isolated gonadotropin deficiency
   - Intracranial tumors (including craniopharyngioma)
3. **<u>High gonadotropin secretion (hyper-gonadotropic hypogonadism):</u>**
   - Chromosomal abnormalities:
     - Klinefelter syndrome (47 XXY)
     - Turner's syndrome (45 XO)
   - Steroid hormone (androgens- estradiol) enzyme deficiencies
   - Acquired gonadal damage:
     - Chemotherapy
     - Radiotherapy
     - Trauma
     - Torsion of the testis

COLLECTIONS

1. **Immunosuppressive:**
   - Aplastic Anemia: ATG, Cyclosporine, others
   - Chronic ITP: Cyclosporine, Azathioprine
   - Autoimmune Hepatitis: Azathioprine
   - SLE: Azathioprine, Cyclophosphamide
   - Steroid Resistant NS: Cyclophosphamide, Mycophenolate

---

2. **Post-infectious Sequel (Immune mediated):**
   - Upper Respiratory Tract infection: Rh. F., MCNS, Post Strept GN, ITP, HSP, Asthma (Intrinsic)
   - Gastroenteritis: Guillen Barre
   - (Viruses related to DM I?)

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3. **Desmopressin:**
   - Hemophilia A
   - vWF deficiency.
   - Enuresis
   - Esophageal Varices

N.B. in OBGYN? Fibroid, intraoperative to decrease bleeding.

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4. **Chorea:**
   - Rheumatic Fever
   - Wilson's Disease
   - CP (dyskinetic)

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5. **Attacked by Capsulated Organisms:**
   - Splenectomy
   - Nephrotic Syndrome
   - Bacterial Meningitis in Children above 2 months

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6. **Toxic Clubbing:**
   - Infective endocarditis
   - Lung Abscess
   - Bronchiactesis

N.B. another name? *Pale Clubbing*. Cyanotic Clubbing is also called *Blue Clubbing*.

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7. **"Fleeting"**
   - Arthritis in Rheumatic Fever
   - Rash in systemic onset JIA

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8. **Non Chest symptoms in Pneumonia:**
    - Abdominal Pain (lower lobe)
    - Neck Pain

---

9. **Bacterial Lymphocytosis:**
    - TB
    - Pertussis

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10. **"Absolute" in labs:**
    - Lymphocytosis: Pertussis
    - Neutropenia: Neonatal Sepsis

---

11. **Thrombosis:**
    - Congenital Cyanotic Heart Disease
    - Nephrotic Syndrome
    - SCA

---

12. **Infections predispose to:**
    - 2 Crises in SCA (VO and Inf.)
    - Acute Hemolysis in G6PD
    - Hyper cyanotic Spell in Fallot

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13. **ACE-I:**
    - Diabetic Nephropathy
    - Ped HTN (Stage 2 or 2ry)
    - CKD
    - Nephrotic Syndrome

---

14. **More common in MALES:**
    - MCNS (2:1)
    - HSP
    - CHPS
    - BA (2:1)
    - Febrile Convulsions
    - Enuresis
    - All X linked diseases as Duchenne, hemophilia a &b

---

15. **More common in FEMALES:**
    - ASD
    - PDA
    - Chorea in Rheumatic Fever
    - Acquired hypothyroidism
    - SLE

16. **Alopecia:**
    - SLE
    - S.E. of Cyclophosphamide

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17. **Projectile Vomiting:**
    - Increased ICT
    - CHPS

---

18. **Hyperventilation:**
    - Diagnostic: Triggers absence seizure
    - Therapeutic: Brain edema

---

19. **Ankylosis**
    - Hemophilia
    - JRA
    - CP

---

20. **Crohn's**
    - Arthritis
    - Recurrent abdominal pain (and bleeding per rectum)
    - Delayed Puberty

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21. **Splenectomy is curative in**
    - Spherocytosis
    - Chronic ITP

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22. **Hepatitis**
    - Aplastic Anemia
    - 2ry Nephrotic/Nephritic Syndrome
    - Type 1 DM

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23. **EBV**
    - Hemolytic Anemia (IMMUNE)
    - BM Depression

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24. **Chemical Toxins**
    - Type 1 DM
    - Aplastic Anemia

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25. **Maternal SLE:**
    - Complete Heart Block
    - Neonatal Thrombocytopenia

- Preterm and SGA

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26. Mottled Skin:

- Shock
- Severe Dehydration
- Cong. Hypothyroidism

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27. Mycoplasma:

- Pneumonia (School age)
- Hemolytic Anemia (IMMUNE)
- Meningitis

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28. Pericardial Effusion:

- Systemic onset JRA
- SLE
- Rh Carditis

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29. Activation of TB:

- Pertussis
- Measles

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30. ↓ Anticoagulants:

- Ptn S def: Neonatal seizures, Chicken pox *(Purpura Ful.)*
- Loss of Antithrombin: Nephrotic Syndrome

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31. Mucopolysaccharidosis:

- Macrocephaly (Hurler's)
- Disproportionate Short Stature (Morquio's)
- Mental Retardation (Neurodegenerative Disorders)
- Epilepsy (Neurodegenerative Disorders)
- X-Linked recessive (Hunter's)
- HSM

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32. Parvovirus:

- Slapped cheek syndrome (DD of Maculopapular rash)
- RBC Aplasia (Anemia)
- Aplastic Crisis (Chronic Hemolytic Anemia)

N.B. Parvovirus causes NON-IMMUNE Hydrops in fetus. (OBGYN)

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33. Hyaline:

- Membrane Disease (RDS)
- Testis (Klinefelter)

34. **“400,000” in Infections:**
    - Vit A dose in Measles
    - Oral Penicillin V dose in Scarlet fever

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35. **Drugs given Slowly IV:**
    - Ca Gluconate
    - Diazepam
    - Phenobarbitone
    - Phenytoin
    - Bicarbonate
    - Aminophylline

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36. **Drugs given ET:**
    - Adrenaline: Emergency, Neonatal Resuscitation
    - Surfactant: RDS

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37. **Phenobarbitone:**
    - Anticonvulsant (1st line in neonatal seizures)
    - Criggler Najjar II

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38. **Aspirin:**
    - مشاكل: Reye Syndrome, Acidosis, BIND, G6PD, Purpura
    - Ttt: Rh Fever (Arthritis and mild carditis), HSL, Fallot, Nephrotic Syndrome

---

39. **Chloramphenicol:**
    - G6PD (Acute hemolysis)
    - Aplastic anemia
    - Contraindicated in Breastfeeding

---

40. **Adrenaline Doses:**
    - 0,1 IV or 0,3 ET (Emergency)
    - 0,3 or 0,5 ET (Neonatology)
    - 0,01 IM (Anaphylaxis)

---

41. **IVIG:**
    - ITP (1gm/kg/day) 2 days
    - Rh incompatibility (1gm/kg) over 2 hours
    - Guillain Barre

---

42. **Indomethacin:**
    - Contraindicated in Breastfeeding
    - ttt of PDA

N.B. Causes Oligohydramnios & may be used as tocolytic in PTL & in ttt of Polyhydramnios in OB/GYN.

---

43. Theophylline:

- ttt: Neonatal Apnea and Asthma
- Cause: Neonatal Seizures

---

44. Eye manifestations:

- Kerato- & Lenticonus (Alport Syndrome in Neph. Syndrome)
- Cataract (Rubella and Galactosemia)
- Chorioretinitis (CMV and Toxoplasma)
- HSV (Lid, Conj and Corneal affection)
- Microphthalmia (Fanconi & Patau)
- Exophthalmus (Crouzon's [craniostenosis])
- Allagile (Corneal Affection)
- Osteogenesis imperfecta (Blue Sclera)
- Oligoarticular JRA (Chronic Iridocyclitis)
- Neuroblastoma (Proptosis)
- Pertussis (Subconj. Hge)
- Dehydration (Sunken)
- Mysthenia (Ptosis)
- Hydrocephalus (Sunset)
- Squint (increased ICT, Hydrocephalus and Down Syn)

---

45. Ear manifestations:

- Poor recoil in Preterm
- Osteogenesis imperfecta (poor hearing)
- Alport syndrome (poor hearing)
- Down syndrome (malformation & poor hearing)
- Turner syndrome (poor hearing)

---

46. Viruses with high fever:

- Measles
- Diabetes
- Herpes gingivostomatitis

---

47. After week 34 (late preterm):

- No Apnea
- Good surfactant
- Less risk for ICHge

---

48. Periventricular:

- Calcifications in CMV
- Leukomalacia in Preterm

---

49. Renal Vein Thrombosis:

- Acute Kidney Injury
- Hematuria
- Chronic Abdominal Mass
- Complication of neonatal Polycythemia

---

50. Enteroviruses:

- Polio
- Coxsackie: Hand & Foot syndrome, Encephalitis, Herpangina, Myocarditis, associated with DM I.
- Echo: Encephalitis, Fever with Purpura (Echovirus 9)

---

51. Erythema:

- Migrans: Lyme disease
- Marginatum: Rh. F.
- Nodosum: Complications of Scarlet Fever
- Infectiousum: Parvovirus
- Multiforme: Steven Johnson Syndrome
- Toxicum: Neonate (reaction to milk)

---

52. Tenesmus:

- Amoebic
- Bacillary
- TB
- Ulcerative Colitis

---

53. CMV:

- Type I DM
- Congenital Inf
- Encephalitis
- Hemolytic Anemia
- Rash + Fever
- Prolonged Fever
- Contraindication of Breastfeeding

---

54. Opisthotonus:

- Kernicterus
- Tetanus
- Meningitis

- & generally, an antigravity position in UMNL

---

55. "Giant":

- Giant Platelet Syndrome
- Gigantism
- Soto's Syndrome (Macrocephaly)
- Giant cell hepatitis (Cholestasis)

---

56. Exchange Transfusion:

- Neonatal hyperbilirubinemia
- VOC in SCA (if stroke, chest, priapism)
- Neonatal Polycythemia (Partial Exchange Transfusion)
- Fallot (Partial Exchange Transfusion)

---

57. Antibiotics for 4-6w:

- Inf. Endocarditis
- Suppurative Lung Disease
- Brain abscess
- Septic Arthritis in Neonatal Sepsis

---

58. Large Joint Affection:

- Rh. F.
- TB
- JIA

---

59. Found in urine:

- Copper in Wilson's
- Succinyl Acetone in Tyrosinemia
- Reducing Substance in Galactosemia
- Phenyl ketones in Phenylketonuria

---

60. "Bronzed":

- Diabetes (Hemosiderosis)
- Baby Syndrome (if Cholestasis is treated with Phototherapy)

---

61. Steroids:

- HSP (GIT, Nephritis, ICHge)
- Aplastic Anemia (Fanconi)
- Acute Lymph. Leukemia (Prednisone -> Remission, Hydrocortisone -> Intrathecal)
- ITP (2mg/ kg Prednisone)
- Rh. Carditis (2 mg/ kg Prednisone)
- Nephrotic Syndrome (2mg/ kg Prednisone)
- SRNS (Methylprednisolone)

- SLE (Prednisone oral, Methylprednisolone IV in acute exacerbation)
- JRA (Oral if systemic onset + Pericarditis)
- Asthma (Severe attack -> IV hydrocortisone, Moderate attack -> Prednisone, Control -> Inhaled & Oral)
- Eczema
- Allergic Rhinitis
- Anaphylaxis
- TB (if ABCD: Ascites, Allergic reaction to drugs, Bronchial Spread, Cervical LN removal, Dissemination -> Meningitis and Miliary)
- Antenatal in RDS (Beta. or Dexa.)
- Autoimmune Hepatitis (Chronic)
- Hypervitaminosis D
- Meningitis (with H. influenzae)
- Infantile Spasms (+ ACTH)
- Coma (Dexamethasone as brain dehydrating agent)
- Duchenne's (10 days per month)

---

62. Adrenaline doses.

	Emergency	Neonatology
IV	0.4	0.3
ET	0.3	1

N.B.

Anaphylaxis is 0.01 IM أصلا مع نفسه

---

63. Antibiotics in Respiratory system

- معظم العلاج في الشابتر ٧-١٠ ايام
- ولو هدي antibiotic غالبا هيبقى ampicillin/amoxacillin

- 50 mg/Kg

1. OM
2. strept tonsillitis
3. bronchitis
4. pneumonia → + gentamycin
5. infective endocarditis prophylaxis

---

64. Clinical diagnosis:

1. HSP
2. Scarlet fever
3. Guillain Barré syndrome
4. Pancreatitis of mumps
5. (Prolapse in gyn.)

---

65. Causes of Intra-cranial hge:

1. Coarctation of aorta
2. ITP, HSP & hemophilia
3. Birth injury
4. (Eclampsia in obs.)

---

66. Conditions following viral URT infection:

1. ITP
2. HSP
3. MCNS & PSGN

---

67. Conditions following GIT infection:

1. Guillain Barré syndrome (following campylobacter pylori infection)
2. HUS (following E. coli infection)

---

68. Rash starts on:

1. Face → Measles & German measles
2. Trunk → Roseola & chickenpox
3. Between them = Base of the neck → Scarlet fever

---

69. No:

1. HF in Fallot's tetralogy (the 2 ventricles support each other)
2. IE in ASD (low P gradient)

---

70. -ve hyperoxia test:

1. TGA
2. Eisenmenger syndrome
3. Irreversible vascular obstructive lesion

---

71. Causes of hematuria in IE:

1. Renal infarction
2. Glomerulonephritis

---

72. HF occur early in:

1. AV canal
2. TGA

---

73. Drug induced anemia:

1. Aplastic → Chloramphenicol, sulfa, cytotoxic drugs
2. Immunologic → Penicillin & methyl-dopa

---

74. Prevention in:

1. RF
2. IE
3. Fe deficiency anemia
4. Hemophilia

---

75. Protected against malaria:

1. SC trait
2. G6PD deficiency

---

76. Hyperglycemia causes:

1. VOC in SCA (hyperosmolar plasma absorb water from RBCs, decreasing amount of dissolved oxygen in RBCs causing sickling)
2. ↓ hemolysis in spherocytosis (hyperosmolar plasma absorbs water from fragile spherical RBCs)

---

77. Causes of Favism + normal G6PD:

1. Didn't wait 2 wks before measuring G6PD activity
2. NADPH deficiency
3. Glutathione deficiency
4. Lab error

---

78. Nodules:

1. Aschoff → Rheumatic Fever induced carditis
2. SC →Rhuematic fever SC affection in 2-10%
3. Osler → IE minor criteria (due to immune complex deposition on the bulb of the finger)

---

79. Incidence of IE:

1. Lt > Rt →since P is higher on the Lt , therefore, more endothelial injury
2. MR > MS → Since P gradient across the valve during systole (120-2=118 mmHg) ,which the time during which MR occur, is higher than that during diastole (6-0=6mmHg), which the time during which MS plays its role.
3. AS > AR → Since ventricles contraction (120mmHg) is more powerful than aortic recoil (80 mmHg)

Most common pediatric syndromes:

Syndromes	
Down	Trisomy 21
Edward	Trisomy 18
Patau	Trisomy 13
Fanconi	
Crouzon's syndrome	Craniostenosis + exophthalmos
Turner	Monosomy X
Klinefelter	XXY
Morquio	Mucopolysaccharidosis IV
Hurler	Mucopolysaccharidosis I (Severest form of MPS)
Hunter	Mucopolysaccharidosis II
Laron	IGF-1 deficiency → Pathological short stature
Silver Russel	Unipaternal disomy of chromosome 7 → Pathological short stature
Sotos	Cerebral giagantism (due to Gliosis)
Marfan	Connective tissue genetic defect
Ehlers Danlos	Connective tissue genetic defect
Cushing	↑ adrenal cortisol
Nutritional recovery	With initiation of kwashiorkor ttt, the liver enlarges more in the first few days (due to storage of lipids)
Reye	Acute encephalitis with fatty infiltration of the liver due to salicylate administration with viral infection.
Mikulicz	Bilateral parotid & lacrimal swelling with dry mouth
Fragile X	Structural chromosomal abnormality in males producing MR + abnormal features + large testes
Hand & foot	Coxachie A virus infection
Hepatorenal	Renal failure secondary to liver cell failure (due to edema induced hypovolemia → ↓ RBF)
Crigler Najjar type I (AR)	Congenitally absent glucuronyl transferase enzyme
Crigler Najjar type II (AD)	Congenitally deficient glucuronyl transferase enzyme
Bronzed baby	The result of phototherapy in cholestasis
Respiratory distress (RDS)	Surfactant deficiency
Meconium aspiration	IU hypoxia → meconium passes to amniotic fluid → Baby breath meconium if respiration is stimulated while still in utero (as in breech delivery) or still covered by amniotic fluid

	after birth
Congenital Rubella	Transplacental Passage of Rubella infection in early pregnancy from the mother to the fetus
Eisenmenger	Reversal of Lt to Rt shunt in congenital cardiac defects
Schwachman-Diamond	Inherited pure red cell aplasia (AR)
TAR	Thrombocytopenia with absent radius
Giant platelet	Adnormal platelets causing non-thrombocytopenic purpura
Kasabach-Merritt	Hemangioma → thrombocytopenia
Evan	Thrombocytopenia + anemia (Rare)
Bernard-Soulier	Glycoprotein 1b deficiency →Platelet dysfunction (=Hemorrhagiparous thrombocytic dystrophy)
Glanzmann's-Naegeli (thrombasthenia)	Glycoprotein IIb/IIIa deficiency →Platelet dysfunction
Sudden infant death	A complication of GERD
Sandifer's	Dystonic movement of neck (A complication of GERD)
Alagille	Paucity of intrahepatic bile ducts + Cong. Heart & vertebral anomalies + Corneal anomalies & triangular face
Alport	Familial nephritis + deafness +lenticonus
Nephrotic	Edema + proteinuria + hypoproteinemia & hyperlipidemia
Nephritic	Glomerulonephritis
Prader-Willi	Deletion in chromosome 15
Sturge Weber	Neuro-cutaneous disorder characterized by MR
Guillain Barré	Symmetric ascending paralysis
Oral allergy	Fruit allergy → itchy mouth

Most common cause of:

Most common Cause of	
Proportionate short stature	Normal variant (90%)
Acute laryngitis/ larngotracheobronchitis	Parainfluenza virus (75%)
Septicemia	Meningococci
Death in hospitalized DKA patients	Brain edema
Neonatal mortality	Preterm
Neonatal seizures	HIE
Pathological indirect hyperbilirubinemia	Hemolytic disease of the newborn (Rh & ABO incompatibility)
Neonatal respiratory distress in preterm	RDS (Surfactant deficiency)

Neonatal respiratory distress in full term	Transient tachypnea of newborn
Neonatal respiratory distress in Post term	Meconium aspiration
Foetal macrosomia	Maternal diabetes
Bleeding in healthy new-born	Hemorrhagic disease of the newborn (transient deficiency of vit.K dependent coagulation factors)
Early onset neonatal sepsis	-Gram -ve enteric bacilli: Klebsiella & E. coli -Enterococci -GBS
Late onset neonatal sepsis	-Coagulase -ve staph. -MRSA -Gram -ve enteric bacilli -GBS
Neonatal sepsis in Egypt	Gram -ve bacilli: Klebsiella, Pseudomonas & E. coli
Congenital heart disease	Polygenic inheritance
IE	Gram +ve bacteria: α-hemolytic streptococci, staph. Aureus & coagulase -ve Staph.
Anaemia in infancy	Iron deficiency
Hemolysis	G6PD deficiency
Purpura	ITP
Acquired bleeding tendency	ITP
Inherited bleeding tendency	Von-Willebrand disease
Acute nasopharyngitis	Viral → Rhinovirus
AOM	Bacterial → Pneumococci, H.influenza, staph., B.catarrhalis, S.pyogenes
Acute cough in children	Acute bronchitis
Acute bronchitis	Viral → Adenovirus & parainfluenza virus
Respiratory distress & wheezes in infancy	Acute bronchiolitis
Wheezing in children	Bronchial asthma
Acute bronchiolitis	RSV (80%)
Pneumonia	RSV
Bacterial pneumonia below 6 years	Pneumococci
Bacterial pneumonia above 6 years	Mycoplasma
Pulmonary TB	Mycobacterium tuberculosis
Recurrent abdominal pain	Dysfunctional (= non-specific = psychogenic) (>90%)
Chronic abdominal mass	hepatosplenomegaly
Intestinal obstruction between 3 month & 3 years	Intussusception
Diarrhea in infants & children	Infective diarrhea (gastroenteritis)
Bacterial gastroenteritis	Campylobacter jujeni (E. coli comes in the 2nd place)
Viral gastroenteritis	Enteroviruses (H**A**V, **P**olio, **C**oxsackie & **E**cho)

Cause of chronic hepatitis in developed countries	NASH (Non-alcoholic steatohepatitis)
Neonatal cholestasis	Idiopathic neonatal hepatitis (Giant cell hepatitis) [EHBA is 2nd most common]
Nephrotic syndrome	Idiopathic (90%)
UTI	E. coli (90%)
Chronic kidney disease in infancy	Developmental (Renal aplasia, hypoplasia or dysplasia)
Epilepsy	Idiopathic (80%)
Non-epileptic convulsions	Febrile
Encephalitis	Herpes simplex
Congenital obstructive hydrocephalus	Aqueduct stenosis
Floppy infant	Werdnig Hoffmann disease
Acute paralysis in children	Guillain Barré syndrome
Progressive motor weakness	Duchenne muscular dystrophy
1ry hypothyroidism	Complete absence of thyroid gland (aplasia or agenesis)
Delayed puberty	Constitutional
True precocious puberty	Idiopathic (80% in female & 50% in male)

Most common:

Most common	
Form of malnutrition	Nutritional dwarfism
Type of rickets	Vitamin -D deficiency rickets
Infection before vaccination	Measles
Food allergens	Milk, eggs, wheat & soy (MEWS)
Neonatal birth bone injury	Fracture of the clavicle
Neonatal birth intra-abdominal visceral injury	Liver hematoma
Choanal atresia	Bony
Type of congenital heart disease	Non-cyanotic (80%)
Type on congenital Non-cyanotic heart disease	VSD (30%)
Type of congenital cyanotic heart disease	Fallot's tetralogy (5%)
Type of defect in ASD	Ostium secundum (80%)
Cardiac lesion in Down syndrome	Endocardial cushion defect = Atrio-ventricular septal defect = ostium primum defect
Type of aortic stenosis	Valvular (deformed or bicuspid aortic valve)
Acquired heart disease in children	Rheumatic fever
Rheumatic heart disease	Mitral regurge (While, Mitral stenosis is most rare in children since it needs 5-10 years)
Chronic hemolytic anemia in Egypt	B-Thalassemia (AR)
RBC enzymopathy	G6PD deficiency

Type of acquired aplastic anemia	Idiopathic (70%)
Type of congenital aplastic anemia	Fanconi anemia
Form of childhood malignancies	Acute Leukemia
Type of acute leukemia in children	Acute lymphoblast leukemia (ALL) (75%)
Type of ITP	Acute (85-90%)
Infection in children	Acute nasopharyngitis
LN affected by tuberculous lymphadenitis	Cervical LNs
Affected vertebrae by Pott's disease	Lower thoracic (as it lies beside the costophrenic space containing exudate full of TB bacilli)
Site of kyphosis in Pott's disease	Mid-thoracic
Pediatric complaint	Abdominal pain
Pancreatic mass due to blunt trauma	Pancreatic pseudo cyst
Site of intussusception	Ileocecal
Form of acute hepatitis in children	Icteric hepatitis
Form of acute hepatitis in infants	Anicteric hepatitis
Presentation of portal HTN	Hematemesis (& earliest manifestation)
Type of primary nephrotic syndrome	Minimal change (75%)
Form of enuresis	Nocturnal
Type of CP	Spastic (70%)
Muscular dystrophy	Duchenne
Food allergy in infants	Milk, egg & peanut
Food allergy in children	Peanut, tree nut & fish
Affected joint in septic arthritis	Knee
Type of JIA	Pauciarticular type 1

TABLES

1. Marasmus vs Kwashiorkor:

	Marasmus	*Kwashiorkor*
Onset	Chronic	Subacute
Type	Undernutrition	Malnutrition
Cause	↓ milk / formula concentration or amount	
Edema	Absent	Present
Psychological	Irritable & anxious	Apathy

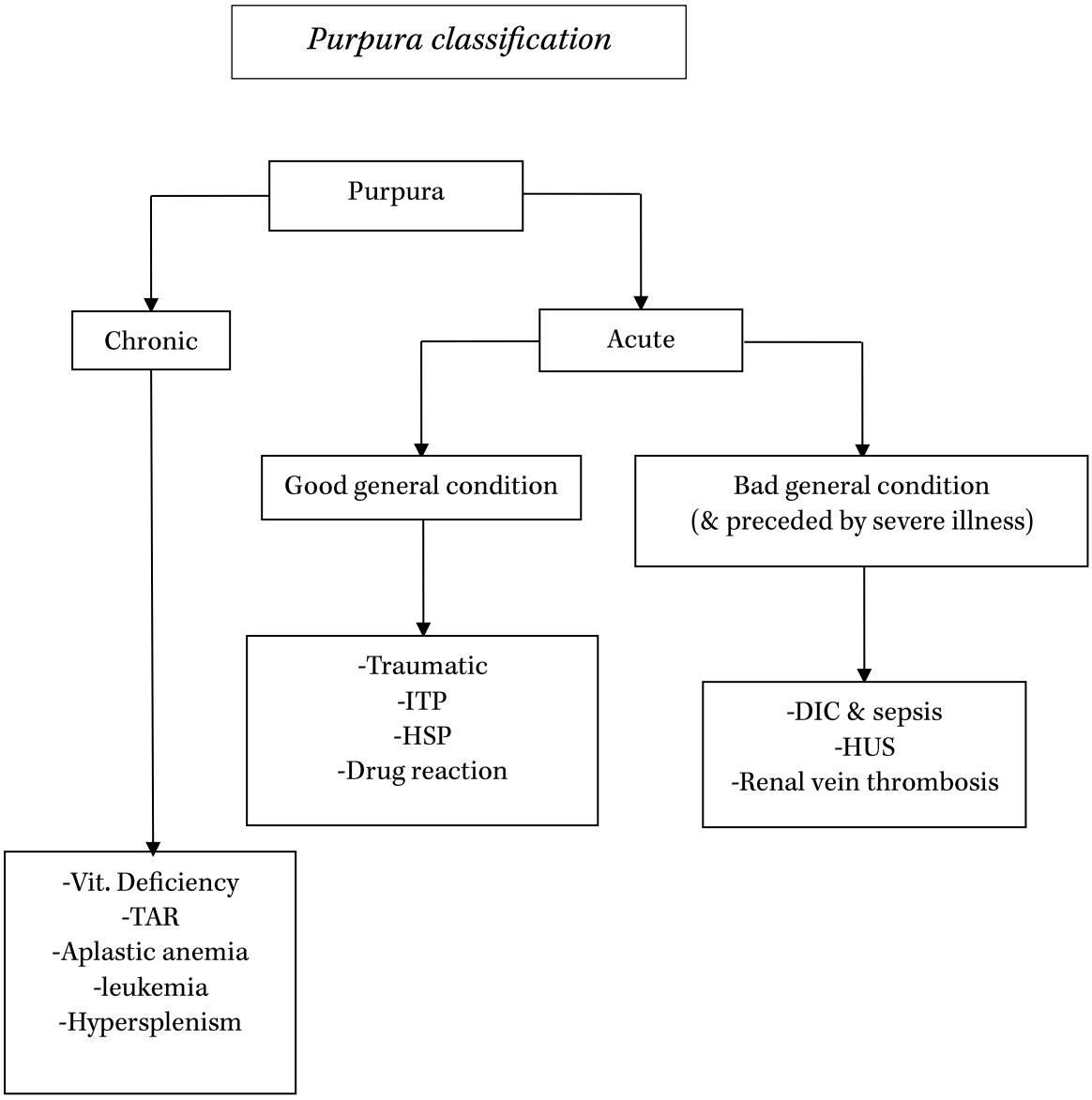
Marasmic ketosis → Associated with Hypoglycemia
DKA ketosis → Associated with Hyperglycemia

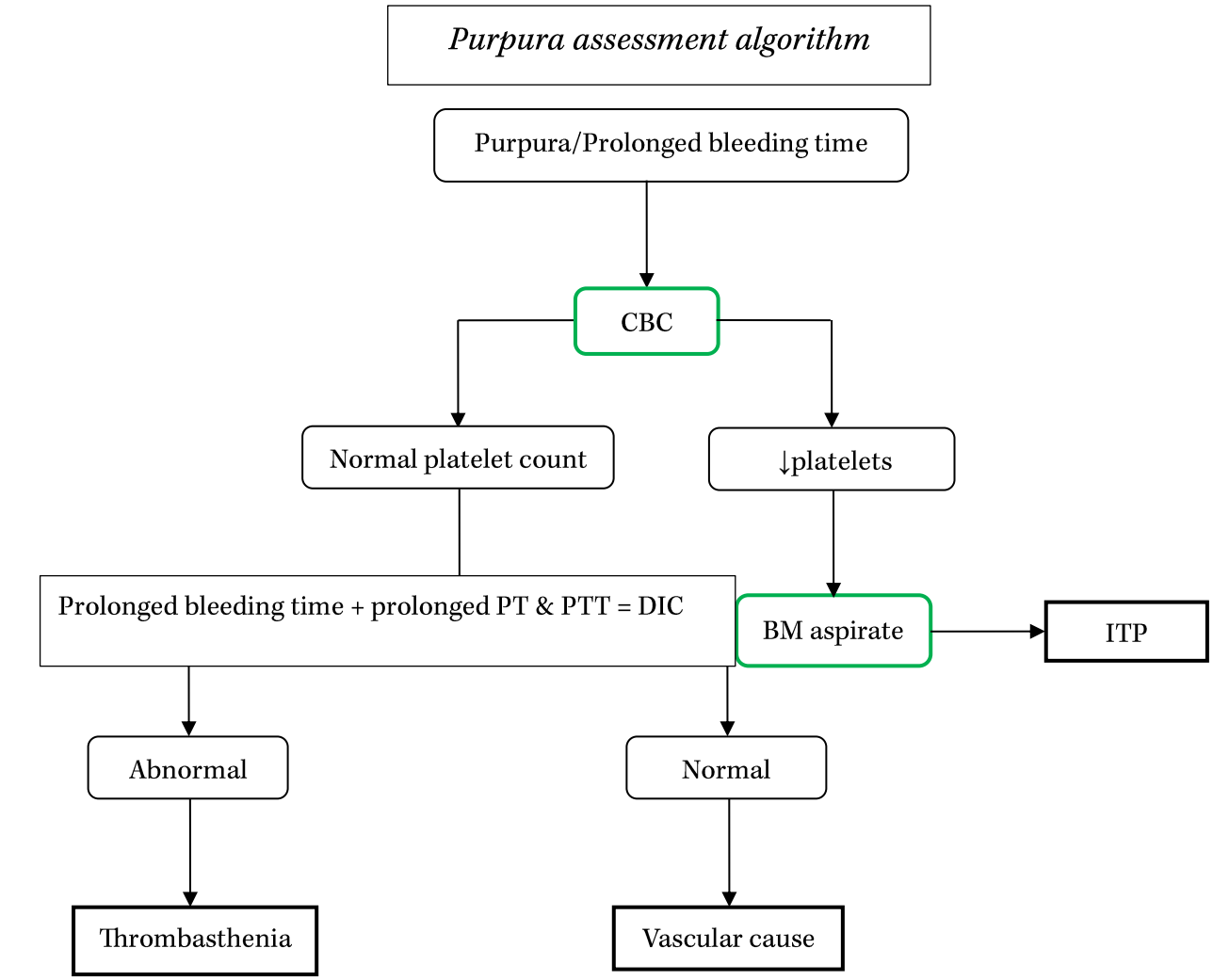
2. Fallot vs TGA:

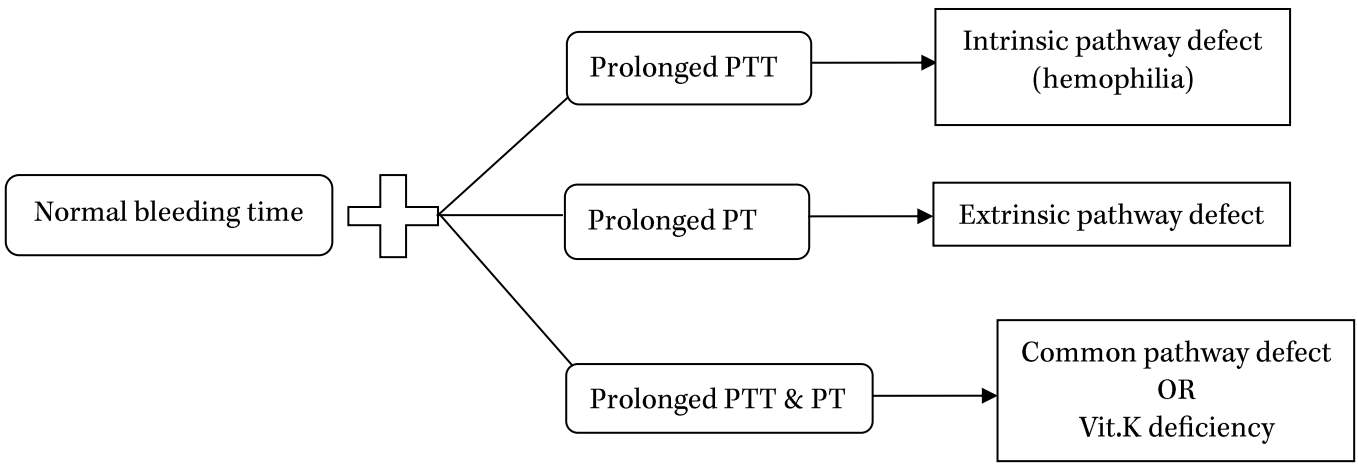
	Fallot	*TGA*
Time of presentation	1-3 months	At birth
Clubbing	1-2 y	Before 1 y
Cardiomegaly	Absent	Present
Auscultation	Ejection systolic murmur	No murmur
S2	Single	
Chest infection	Absent	Present
HF	Absent	Present
X-ray	Boot-shaped heart	Egg on side shaped heart
Timing of total correction surgery	At 6 months	First 3 wks

3. Bleeding disorders:

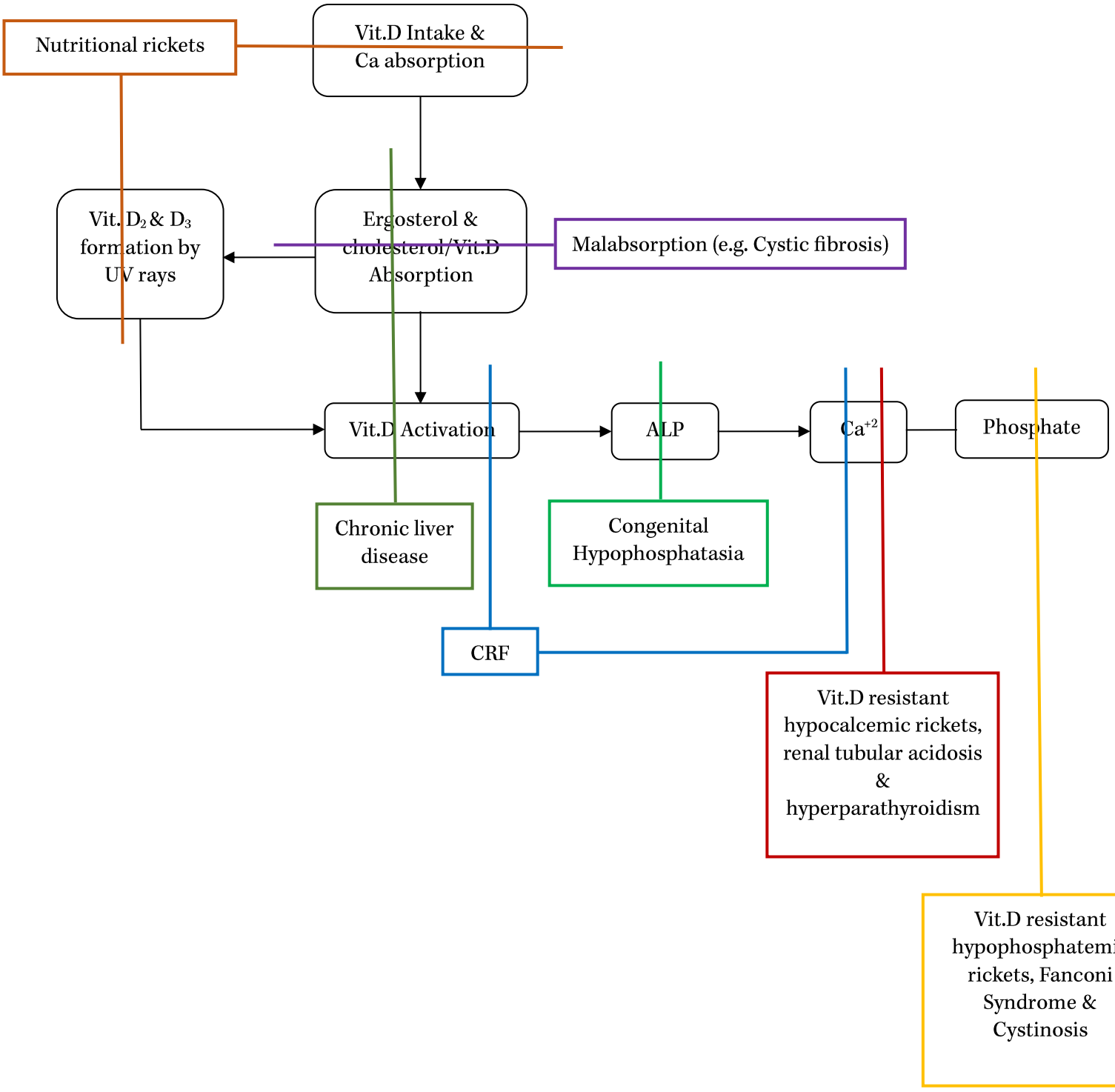
	ITP	*Hemophilia*	*HSP*	*DIC*
Platelet count	↓	Normal	Normal	↓↓
Bleeding time	↑	Normal	Normal	↑↑
PTT	Normal	↑	Normal	↑↑
PT	Normal	Normal	Normal	↑↑


Purpura classification
Purpura
Chronic
Acute
Good general condition
Bad general condition
(& preceded by severe illness)
-Traumatic
-ITP
-HSP
-Drug reaction
-DIC & sepsis
-HUS
-Renal vein thrombosis
-Vit. Deficiency
-TAR
-Aplastic anemia
-leukemia
-Hypersplenism


Purpura assessment algorithm
Purpura/Prolonged bleeding time
CBC
Normal platelet count
↓platelets
Prolonged bleeding time + prolonged PT & PTT = DIC
BM aspirate
ITP
Abnormal
Normal
Thrombasthenia
Vascular cause


Normal bleeding time
Prolonged PTT
Intrinsic pathway defect
(hemophilia)
Prolonged PT
Extrinsic pathway defect
Prolonged PTT & PT
Common pathway defect
OR
Vit.K deficiency

Rickets etiology diagram



N.B. "This diagram represents the interruption of the normal physiological events by Nutritional & non-nutritional rickets causes"

First sign to appear in rickets → Craniotabes (behind the ear)
Earliest manifestation of rickets: High serum ALP (last to normalize)

KEYWORDS

Infection

Disease	*Investigation (Key words)*	*TTT*
Mumps *Parotitis* *Pancreatitis* *Encephalitis*	- Painful swelling in-front & behind the ears with no improvement by analgesics - On pressure on swelling → white discharge - abdominal pain & vomiting - Headache - convulsions - vomiting	- Analgesics - Antipyretics - + ttt of complications
Scarlet fever	Fever, sore throat, abdominal pain Fever, nausea more with maculo-papular rash	- Penicillin V. (oral) - Procaine penicillin - Erythromycin - Antipyretics - Follow up for detect of complications
Roseola Infantum	High fever without clear cause for 4 days then subside with spready rash over the trunk & abdomen + Febrile convulsions	- Antipyretics - Sedative
Rubella	Low grade fever for 1 day diffuse maculopapular rash + Tender occipital lymphadenopathy	- Protection (no specific ttt)
Measles	Fever for 3 days + maculopapular rash on next 3 days With kolpik's spots	- Vitamin A - Antipyretics - Antibiotics
Herpes simplex infection	- Fever - Cervical adenopathy - foul breath - painful oral lesion on his tongue, gums & lips - kerato-conjunctivitis	
Tetanus of neonates	Generalized tonic convulsions, Failure to suckle, dirty infection of umbilical stump	- Penicillin - Ig - Tetanus antitoxin
Meningocele septicemia	- High fever - drowsiness - Vomiting	

	- blue mottling patches with respiratory distress	
Impetigo	Non-painful rash then papule then pustule then coalesced in honey-comb like crusts	
Infectious mononucleosis	- Fever - marked enlarged cervical & inguinal lymphadenopathy + splenomegaly	
Chicken pox	- Fever - running nose - rash popular - pustules - crustations without scar	- Prophylaxis - + 4A - - A

Neonatology

Disease	*Investigation (Key words)*	*TTT*
SGA (IUGR)	Perinatal asphyxia Pregnancy induced HTN Infant of toxemic mother	
IDM	- Polycythemia - Jaundice - Birth injury - Macrosomia - Hypoglycemia - Hypocalcemia - RDS & TTN - VSD - Seizures	- Monitor: Glucose Hb Bilirubin Electrolytes - Compensate any abnormality
ABO Incompatibility	Mother → O Baby → A, B, AB	
Rh incompatibility	Mother → negative Baby → positive	- Induction of labor at 33 weeks - Blood exchange - Human anti-D globulin
Meconium aspiration syndrome	- Mother → DM, HTN, Prolonged labor - Baby → post-term & fetal hypoxia - Symptoms of RDS - Hyperinflated lung - X-ray → streaky areas of collapsed lung	- Suction - Oxygen & mechanical resuscitation
Choanal atresia	- Cyanosis during feeding - Which relieve by crying - Catheter into nose not pass	- Surgical correction - Nasal or oral naso-laryngeal tube
Diaphragmatic hernia	- Scaphoid abdomen - No breath found on left side of thorax - No improvement with ETT	- All solvings are accepted except IPPV or CPAP
RDS	- Preterm < 37 months - - CS - Tachypnea (grade I) >60\minutes - Intercostal and subcostal retraction (grade II) - Cyanosis (grade IV) - Grunting (grade III) - Chest X-ray → white lung	- Decreased lung compliance - Decreased lung volume - Embryo circulation - Right to left shunt

Hypocalcemia	- Early: 1- Preterm infant 2- IDM 3- IUGR asphyxia - Late: 1- Increased phosphate level 2- Immature parathyroid	- < 6.5: 5 ml\kg\24 10%Cugh - In apnea or failure: 2 ml\kg\ of 10% of calcium gluconate in 5 minutes
Convulsions	- Hypoglycemia <40 - Or hypocalcemia <7 - Or hypoxia of the brain - Magnesium - Preterm of DM - + or – sodium - HIE	
Hypothermia	- Temperature <35 c ➔ warmer	
TTN	- Full-term + CS +distress – cyanosis + pulmonary vascular markings	
STORCH (congenital infections)	- Petechiae in new born + seizures - Thrombocytopenia - Hepatosplenomegaly	
Sepsis	- Fever, bulging anterior fontanel, no neck rigidity, feeding problem الأم هتقولك الولد سخن وهمدان ومش بيرضع ومصفر وعنده اسهال وترجيع وبطنه منفوخة وبيتشنج	
Heart failure	3T: - Tachypnea - Tachycardia - Tender liver	
RDS	- بيسأل عن: grades, X-ray - Tachypnea - Intercostal and subcostal retraction - Expiratory Grunting - Chest X-ray → reticular granular	
Hemorrhagic disease of new born	- Bleeding with normal platelets count “Vitamin K deficiency”	
Birth injury	- Pallor with occult bleeding “intra-abdominal, intra-cranial” - Cephalohematoma Subgaleal hematoma IC hematoma caput succedaneum - Due to prolonged labor	

Jaundice	- Total bilirubin >15 - Direct bilirubin: 1 or 2 - Enlarged liver → biliary atresia - First day → ABO – Rh incompatibility - Second & third day → physiological case - Fourth day → breast milk jaundice & hypothyroidism	
Anemia	- Pallor in color - Birth injury (Cephalohematoma, Subgaleal, caput succedaneum, IC hemorrhage) - Occult bleeding (IC hemorrhage, intra-abdominal hge - Occult blood loss (feto-maternal transfusion, feto-fetal transfusion) - Occult blood loss come in case after exclusion of other reasons	- Erythropoietin in preterm (prophylactic) - RBCs exchange – Whole blood
Polycythemia	- LGA (IDM) - Hypoxia: * Infant of toxemic mother → HTN * placental aging → post-term newborn	

Cardiology

Disease	*Investigation (Key words)*	*TTT*
ASD	- May be normal check-up - Fixed wide split S2 - Ejection systolic murmur on pulmonary area	- Main ttt closure: *catheter *surgical - Medical ttt for complication
VSD	Symptoms of heart defect: - Shorten of breath - Difficulty in feeding - Tachypnea – Irritation - Pan-systolic murmur over left lower sternal border	- Main ttt closure: *catheter *surgical - Medical ttt for complication
PDA	- Continuous machinery murmur - Load S2	- 1st weak → Indomethacin - 1st year ends → closure: *catheter *surgical
Teratology of Fallot	- Cyanosis on feeding - Systolic ejection murmur on pulmonary area - Chest x-ray→ mild Right ventricular enlargement & small pulmonary artery - Clubbing of fingers	- Prostaglandins infusion - Deeply cyanosed neonate → Palliative shunt - Total correction at 6 months with patch closure
TGA	- Single S2 - Cyanosis since birth which exaggerates in second day - X-ray → egg-shaped heart - Clubbing of fingers	- Prostaglandins infusion - Rashkind septostomy (first day) - Total correction in first 3 weeks of life
Digitalis toxicity	- Vomiting - Cardiac arrhythmia - Visual disturbance	• Fab
Rheumatic fever	- Major → ACCES - Minor → AAEEFF - Evidence → throat culture & Anti-streptococcal antibodies • Investigations: ✓ evidence for streptococcal infection ASOT, throat culture ✓ Degree of inflammation: CBC, ESR, CRP	- TTT → Aspirin & steroid - TTT of chorea - TTT of complication - Primary prevention - Secondary prevention
Heart failure	3T:	- Diuretics

	- Tachypnea - Tachypnea - Tender enlargement + - Symptoms of VSD, ASD	- Digitalis - Oxygen therapy & fluid restriction - First action in the case anti-failure ttt and VD in grade III heart failure - After management → ttt of the complication
Septic arthritis	- Inability to move, swollen, tender knee joint - Most common organisms are H. Influenza and staph. Auris - Joint fluid examination (Tapping)	- AB ttt → local and symptomatic - Drainage - Surgical connection
Coarctation of aorta	- Radio-femoral delay - Cyanosis on exercise - Systolic murmur over the back accentuated S2 - Differential cyanosis	- Stent (من جوة) - Resection (BV) - Graft (من برة)
Infective endocarditis	- Fever > 38C – splenomegaly - Vascular or other immune signs - Signs of Carditis and congenital heart - Heart failure	- Penicillin – gentamycin - Surgical with persistent bacteremia and progressive heart failure
Carditis *myocarditis* *Rheumatic fever*	- Tachycardia - Tachypnea - Or Dyspnea - Muffled heart sounds	- TTT of rheumatic fever
Cardiogenic shock	- Low BP - High heart rate or pulse - Enlarged liver - Increased capillary refill	- Dopamine → first line - Preload ttt - Afterload ttt - Arrhythmia ttt
Aortic stenosis	- Murmur of aortic area - Ejection systolic click - Dyspnea on exercise - Echocardiography → aortic stenosis	- If pressure gradient > 50 mm HG: • Balloon valvoplasty • Valvotomy • Valve replacement
Pulmonary stenosis	- Load harsh murmur on pulmonary area without any signs for congenital heart	- Balloon valvoplasty (من جوة) - Valvotomy (BV) - Valve replacement (من برة)

Hematology

Disease	*Investigations -keywords*	*Management*
IDA	1. History: prolong Breast Feeding - cow milk -Picky eater dyspnea – tachycardia 2. CBC - ↓HB – microcyte hypochromic 3. blood chemistry ↓iron ↓ferritin ↓TIBC	1. 1st line \oral iron 2. 2nd line \ IM iron for 2months or 4-8 weeks after normalization CBC
B-thalassemia major	1. History –consanguinity – 2nd 6 months of life 2. CBC – microcyte hypochromic anemia - target cells fetal Hb *A2 HB in B-thalassemia trait	SS+ RBCs 1- supportive 2- packed RBCs 3- chelating agent 4- splenectomy
Sickle	1. History any vaso-occlusive crisis 2. CBC • sickle cells • 20-40 % HS trait • >90 % HS major any investigation for crisis is chemistry of blood	1- O2 and fluid transfusion 2- blood transfusion 3- exchange transfusion 4- bicarbonate 5- complete bed rest ABBCG
G6PD	- Neonatal jaundice - analgesic - palpitation - antibiotic - dyspnea - antimalaria - drowsiness - Acute hemolysis - normochromic normocytic - jaundice - hemoglobinemia - hemoglobinuria	Urgent packed RBCs transfusion chelating if repeated
H-spherocytosis – hereditary الآباء مش لازم يكونوا مصابين	25% mutation (AD) parents not have the dis	RBCs transfusion chelating splenectomy
Any case occlusive	CBC	1st IV fluid & o2

crisis		2nd bl. Transfusion 3rd exchange transfusion
Aplastic anemia	- Purpura - pale in color - ecchymosis & bleeding - ↓blood para meter	BMT immunosuppressive ATA
Acute leukemia	- Most common (ALL) - bone pain - Aplastic anemia - lymphadenopathy - hepatosplenomegaly	Supportive ttt chemotherapy
Fanconi	- Aplastic anemia - absent radius - nephritis - Microcephaly - Microphthalmia - mental retardation - ↓body proportion + pigmentation	1) 1st Androgen corticosteroid 2) BMT
TAR	Thrombocytopenia only with absent radius	
Purpura	- In lower limb →HSP with splenomegaly→ leukemia - (purpura on mucous membrane) generalized - purpura →ITP - epistaxis →VWD - blood collection→ hemophilia A	
ITP	- Acute 40% chronic 10 % not blanching – not raised - red turns to green within 2 days - (purpura on mucous membrane)	Prednisone IVIG→ acute then plasmapheresis splenectomy chronic
HSP	- Lower limb purpura - arthritis joint of LL - intussusption GIT - nephritis - Testicular hemorrhage	Salicylate steroid

Respiration

Disease	*Investigation Key words*	*TTT*
Lower respiratory tract infection	- Prodroma: upper respiratory tract infection for 2 days - Then cough, dyspnea	
Acute bronchiolitis	- Cough+ runny nose sneezing couple - Expiratory wheezes - Respiratory distress (Tachypnea) - Chest hyper expansion - Chest x-ray: "hyper inflated chest"	- Humidified O_2 + IV fluid - Hand hygiene - High frequency MV - 3H - Caused by RSV
Acute bronchitis	- Prodrome for 2 days of common cold “sneezing” - “running nose” then - Low grade fever-cough - No respiratory distress - No wheezes - No chest signs in x-ray - May come late with high fever - In 2ry bacterial infection	- Most cases recover spontaneously - Expectorants and mucolytics - Antipyretics - Antibiotics
Whooping cough	Paroxysmal stage of attacks if spasmodic cough followed by vomiting of large amount of sputum	Erythromycin + symptomatic & complication ttt
Acute otitis media	- Fever-ear discharge if perforated drum - Bright red bulging ear drum - Continuous crying and ear nabbing	- Broad spectrum Abs - Analgesics antipyretics
Nasopharyngitis *Common cold*	- Mild fever - runny nose - malaise - Vomiting - Hyperaemic throat	Paracetamol only as antipyretics

Disease	*Investigation keywords*	*TTT*
Pneumonia	- Fever-cough-difficult breathing-respiratory distress+ referred pain in neck or abdomen - RR > 40 - bronchial breathing on auscultation on affected lobe - Chest x-ray heterogenous opacity - CBC, WBCs(high) band cells ++ - No wheezes except in interstitial pneumonia "caused by RSV" if patient develop sudden respiratory distress + hypotension +poor perfusion = complicated pneumothorax	- 1ST line –supportive ttt - O_2 +IV fluid - Need hospitalization if sever cases
TB	- TB toxemia - Loss of weight -night seat - Loss of appetite-night fever - TB spread - Fever-malabsorption - Lymphadenopathy - + VIP chest x-ray - +ve tuberculin test	- All anti TB are oral except streptomycin - RIP"1st line " 1- rifampicin oral 2- isoniazid (DOC) oral 3- pyrazinamide oral - 2ed line 1- Streptomycin IM 2- Ethambutol oral 3- Ethionamide oral
Bronchial asthma	- Repeated respiratory distress & cough especially at night - The condition has family history of parents or family - Night cough not improved by decongestant - O_2 saturation decreases - Wide spread expiratory wheezes	1ST line SABA 2NDsteroid
Diaphragmatic hernia	- Respiratory distress - No air entry on left side of the chest	CI CPAP or MV
Acute laryngitis	- Mild respiratory distress - Stridor - Barking cough - Para influenza virus	- Humid O_2& Iv fluid - Nebulized epiprophine - Systemic steroid
Eczema	- Fever dyspnea -wheezes - Urticaria - Penicillin infection - MEWS eating	1ST IM or ID adrenaline 2ND steroid
Tonsillitis	- Fever-tonsillitis -retropharyngeal abscess - Tonsillitis – stridor	

	- Peritonsillar abscess	
Complicated pneumothorax	- Pneumonia then sudden development of respiratory distress - Tachypnea - O_2 saturation	1^{ST} line chest tube
Aspiration pneumonia	- Gasoline intake with cough - Tachypnea -sub costal retractions - **Case** • Vomiting then stopped • 2^{ND} day—respiratory distress	- 1^{ST} line- O_2 therapy - ABG - CI - Stomach wash - Induced vomiting
Laryngeoedema	- Noisy breathing - Worsen during supine position - Inspiration stridor	
Foreign body aspiration	- Sudden onset of cough-stridor - Intercostal retraction - -respiratory distress (Tachypnea) - Chest x-ray localized body in chest (trachea-bronchi) - Wheezing	- Suction - Bronchoscopy - If lung collapsed-chest tube
Choanal atresia	Neonate with respiratory distress which improve on crying	- Orotracheal tube - Oral airway tube - Nonlaryngeal tube if unilateral

Disease	*Investigation keywords*	*TTT*
Tracheo-Esophageal fistula	- Wheezes &cough during feeding - Since birth - Expiratory wheezes - Investigations: upper gastrointestinal contrast - Or chest & neck x-ray with Ryle tube in oesophagus	Surgical correction
Cystic fibrosis	- Poor weight gain - Persistent cough - Several bouts of pneumothorax - Large amount, foul smelling - Stool for long period - Sweat chloride test - Na^{+}>60 MEq/dl - Normal is 30 MEq/dl	

GIT

Disease	*Investigations and keywords*	*TTT*
Acute intussusception	- 1st: vomiting& crying. - 2nd: sausage like mass or drawing the leg over the abdomen. - 3rd: RE blood stool or red currant jelly stool. - Investigations: 1. X-ray: multiple air fluid. 2. X-ray with contrast. 3. Abdominal u/s	Reduction or resection N.B: Intussusception occur mostly in ileocecum so most probable will be under liver mass (upper right quadrant)
CHPS شيبسى بالزيتون	- 3-4 weeks of age. - Projectile vomiting. - (Non projectile vomiting). - Olive like mass on Rt side of umbilicus. - Vomiting after 2 months - Peristalsis movement during feeding	- Fluid correction. - Pyloromyotomy.
Dysfunctional abdominal pain.	- Recurrent pain - Not tender - Around umbilicus. - Normal labs. - Stool analysis. عشان تطمن الأم	reassurance
Git malrotation	- Bilious vomiting - Pain - X-ray with contrast: Show abnormal site for flexure and other parts of git.	Surgical correlation

Disease	*Investigations and keywords*	*TTT*
Congenital megacolon.	- 2-3 days of age. - No stool passing. - Abdominal distention, vomiting.	Surgery
Congenital abdominal hyperplasia	- Vomiting, dehydration. - Skin hyperpigmentation.	Medical. Chemo & radiotherapy. Surgery.
Neuroblastoma. *BM → pallor & petechia.*	- Below 3 years of age. - Abdominal distention. - Fever. - Pallor+ petechial spots. - Liver ptosis& hepatomegaly. - Hard mass on left hypochondrium. - BM/diagnostic method.	Once therapy. **NB:** - Suprarenal gland → cortisol ↑glucose. - aldosterone →Na retain. So, Neuroblastoma→ hyponatremia& hypoglycemia.
Wilms tumor	- Age≥3 years. - Hematuria. - Abdominal distension. - Masses on Rt& Lt hypochondrium.	- Onco therapy. - Ct abdomen & biopsy → investigation.
Dehydration.	- Skin-MM- orifices of head. - Tear-urine-RR- HR. - Pulse-general condition. - (Detect the degree).	1. shock therapy. 2. deficit therapy. 3. Maintenance therapy 4. KCl solution15%. 5. ORS.

Disease	*Keywords & investigations*	*TTT*
Duodenal atresia.	- bilious vomiting. - passing meconium. - gastric distension. - Age below 1 month.	
Celiac disease	- Abdominal distention. - Diarrhea. - Body wasting. → during time of weaning by wheat product.	Gluten free diet.
Familial Mediterranean fever.	Acute recurrent attack of abdominal pain every 1-2 month/ with arthritis	VIP
Fecal mass	- Recurrent abdominal pain. - Constipation. - At evening before sleeping.	Laxative.
Hench schonalin purpura	- Acute abdominal pain without control by analgesia. - Purpura in LL	
GERD	- 30% of children in 1st year. - - start from 2nd week but child grow normally with improvement from 1 month of age.	- Mild: position and thick food - Moderate: domperidone and omeprazole - Severe: fundoplication

Hepatology

Disease	*Key word, investigation*	*TTT*
Acute hepatitis	-Acute abdominal pain in RT upper quadrant -jaundice -pruritis – mild hepatomegaly -enlarged tender liver Swelling→hepatomegaly Hotness→low grade fever Tenderness→ enlarged tender liver Redness →jaundice SHATR *Investigations:* C→ anti HC, PCR B →markers • HBsAg-→acute • HBsAb -→vaccine /Recovery • HBcIgG→chronic -→ A markers {IgM→recent /IgG→recovery and immunity}	-prevention -general -vaccines {A, B} -actual ttt -Antiviral (A, B, C} -interferon - {A, E} spontaneous
Neonatal cholestasis	-Jaundice- pruritis- hepatitis then percutaneous liver biopsy -clay colored stool -bleeding HIDA SCAN -fever- nonbilious vomiting *Investigations:* 1- Bilirubin & AlT, AST 2- Liver function 3- 6 steps investigations 4- Treatable 5- STORCH screening 6- Other metabolite	بتظبط العيان عشان تنقل كبد 1- replacement therapy 2- displacement operation 3- symptomatic 4- transplantation
portal HTN	• postural hypertension • Ascites • Splenomegaly or HSM • Collateral circulation • hematemesis {NIP} *Investigations:* Vascular disease due to hepatic disease - VASCULAR INVESTIGATIONS: 1- Endoscopy	In case of hepatitis complicated by portal HTN: it's emergency so do not go for TTT of hepatitis now, manage your case for bleeding or ascites or splenomegaly first then go to hepatitis. *Treatment:* 1- Manage bleeding

	2- CTA -MRV 3- doppler -U/S - HEPATIC INVESTIGATIONS: 1- liver function 2- casual INV 3- hepatitis marker 4- Autoimmune markers 5- TMS-sweat 6- Liver biopsy	a. IVF b. Plasma c. whole blood transfusion 2- Endoscope a. Vasopressive b. Sclerotherapy c. Band ligation 3- surgery a. TIPS b. pss *PREVENTION* 1st line 1- Avoid NSAID 2- BB 3- SCLERotherapy 2ndline 1- BB 2- Sclerothetherapy 3- PSS 4- LT

Neurology

Definition	*Cl/P and Investigations*	*Treatment*
Guillain Barre Syndrome *EMG*	-GIT infection -Inability to walk (Progressive to bulbar paralysis) -Respiratory failure -Absent deep reflexes	-ICU - mech vent Then IVIG and Plasmapheresis -Physiotherapy
Duchenne Muscle Dystrophy *EMG*	-Difficult in climbing stairs -Waddling gait -Calves muscle enlargement on examination -Lordosis during walking	Gower's Signs - Conservative -Respiratory aids + Steroid
Convulsions	-1st attack or 2nd attack (epilepsy is not diagnosed by first attack , we diagnose it if recurrent, so we deal with first attack by anticonvulsants only, also we use them in epilepsy as emergency management. - salivatory and gargling noises with inability to speak and no response to verbal order (immbending convulsion so deal as convulsion) -Fever + vomiting + seizures= febrile convulsions. → 5 criteria of febrile: 1- fever 2- vomiting 3- seizures 4- no history for previous convulsions 5- evidence for extra cranial cause not intra cranial cause and family history - EEG	- Anticonvulsant (diazepam) (most appropriate rescue therapy) - Antiepileptics 1. Neonatal (Phenobarbitone) 2. Child or infant (Dipakin) -After management search for cause 1. Vital sign specially BP 2. Neurological examination 3. Cutaneous and abdominal
Head Trauma	-Sudden onset of lateralization signs -Unconsciousness -Hemiplegia	- CT Brain

Disease	*Cl/P and investigations*	*Treatment*
TORCH	-IUGR + Purpura + HSM -Prolonged neonatal jaundice	CSF culture Blood culture Serology TORCH screening
Meningitis	-Purpura fulminous (rapid spreading non-bleeding rash) → Rapid progressive DIC → Shock -Fever + cough + poor growth = TB + sign for ICT (increased cranial tension) *CSF examination	 → So first line of ttt shock therapy → TB meningitis, take TB therapy
CP	-Delayed development -Floppy baby -Hyperreflexia -Respiratory infection	
Werdnig Hoffman Disease *EMG*	(from neonatal period till now) -Flaccid paralysis (bulbar paralysis) -Dry pregnancy?? -Decreased fetal movement -Arthrogryposis -Worm like fasciculations of tongue	 Treatment of pulmonary complications + Nasogastric tube

Disease	*Cl/p and Investigation*
Poliomyelitis	-Unilateral lower limb motor weakness with normal sensation
Midline post fossa tumor	-Rapid, progressive increased ICT with ataxia or gait -Instability -Papilledema, headache, projectile vomiting
Petit mal seizure	Consciousness impairment for 5-20 seconds

Endocrinology

Disease	*c/p and investigations*	*Treatment*
Premature thelarche	Breast enlargement without another organ enlargement	Reassurance
Gynecomastia	Without discharge	Reassurance
Premature adrenarche	Pubic hair development without other 2ry characters	Reassurance
True precocious puberty	2ry sex character appear, enlargement of gonads ovulation or spermatogenesis before 4-8 years	If idiopathic reassurance if you detect the cause treat it
Pseudo precocious puberty	2ry sex character appear without gonads enlargement	Ttt the cause tumor or excess hormones
Delayed puberty	Delayed appearance of 2ry sexual ccc after 8-14 years	FSH –LH testosterone puberty hormone profile exclude systemic diseases
Gynecomastia in male	Breast enlargement with discharge	FSH, LH, serum testosterone + breast U/S
Hypothyroidism	1ry ↓T3, T4 ↑TSH 2ry ↓T3, T4↓TSH +CP at birth / screening newborn /constipation Abd distension prolonged jaundice excess sleep childhood /delayed sexual development, motor & mental retarded, protruded tongue	T3 T4, TSH bone age radioactive assay US neonatal screening Treatment: lifelong thyroid hormone continuous monitor of developmental aspects
DM I	Polyuria &polyphagia nocturnal enuresis come with rapid breathing with special odor of breath fasting glucose > 126 come of hypoglycemia due to insulin dose	Lifelong insulin therapy + monitor of development Aspect
DKA	Acute abdomen pain, vomiting history of polyphagia &polydipsia diagnostic criteria →DM →labs	Saline → infusion to correct dehydration , shock ABG

NOTES & MNEMONICS

Neonatology

1. Convulsions (Neonatal seizures):

➔ *Causes:*

A. Hypoxic:

1. Perinatal problem.
2. Polycythemia.

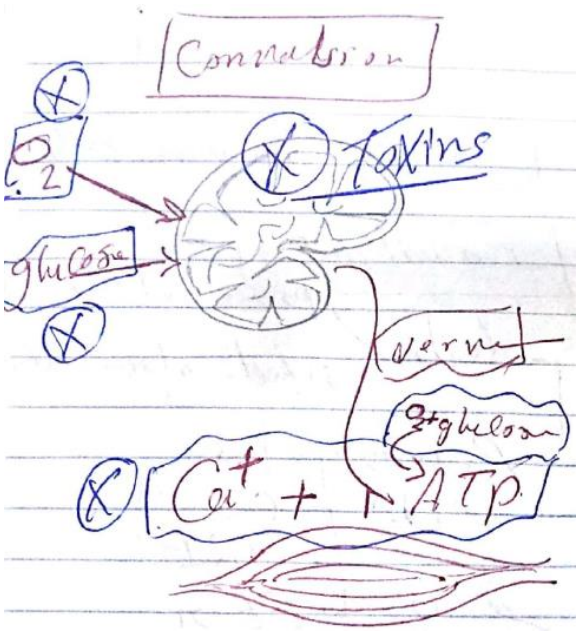
B. Hypoglycemia:

1. Metabolic problem.
2. ↓ Ca^{2+} & ↓ ATP.

C. Brain toxins:

1. Congenital problems.
2. Infections.
3. Infarction.
4. Drugs.

D. Unknown.



➔ *Investigations:*

A. Lab:

1. Power indicators.
2. Infections & toxin indicators.

B. Radiology:

أعمل أي أشعة على المخ:

1. U/S.
2. CT.
3. MRI.
4. EEG.

➔ *Treatment:*

1. Phenobarbitone.
2. Phenytoin.

➔ *Prognosis:*

1. 15%: Death.
2. 30%: Neurological sequeale.
3. 15-20%: Chronic.
4. 40%: Normal.

---

2. Preterm:

➔ *Causes:*

Preterm = Immature.

1. *Mother.*
2. *Uterus + Cervix.*
3. *Placenta + Membranes.*
4. *Fetus.*

➔ *Mechanism → Hypoxia.*

➔ *Clinical picture:*

- *Measures: ↓.*
  - eye, face & skin.
  - breast & genitalia.
  - Lower limb & sole.

➔ *Complications = causes of death* من الشرعي:

1. CNS: أصفر وأحمر وأبيض.
2. CVS: sepsis, retina, metabolic.
3. Respiratory: AAB (Apnea, Aspiration & Broncho-pulmonary dysplasia) + RDS.
4. GIT: NE, GERD & poor suckling.

---

3. SGA:

➔ *Causes:*

علاقته وحشة مع أمه:

A. Maternal diseases.

B. Baby abnormality.

C. Placenta:

1. HTN.
2. Collagen vascular disease.
3. Multiple gestations.
4. Vascular malformations.
5. Infarctions.

➔ *Clinical picture:*

Compare with preterm.

A. Measures: ↓.

1. Eye, face& skin: mature.
2. Breast & genitalia: mature.
3. LL & sole: mature.

B. + Umbilical cord: thin.

دي زيادة عن الpreterm.

C. -- Subcutaneous fat.

ودي كمان زيادة.

➔ *Complications:*

1. Infections (TORCH).
2. Congenital anomalies.

3. Respiratory: ↓.
4. Metabolic: ↓.

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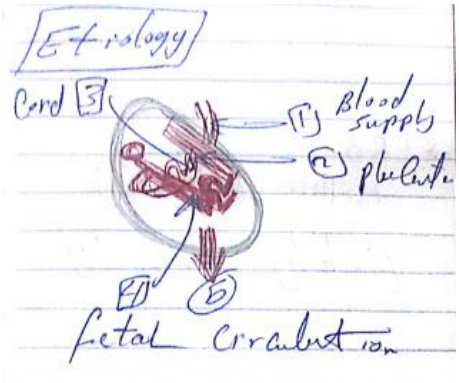
4. Hypoxic ischemic encephalopathy:

➔ *Etiology:*

1. Impaired placental flow.
2. ↓ Placental gas exchange.
3. Impaired cord blood flow.
4. Fetal anemia.
5. Birth asphyxia.



➔ *Clinical picture:*

من الواضح إن خلايا المخ هتموت وهو لسه جنين. وبالتالي الـC/P بتاعته هتيجي وهو جنين. وبالتالي محتاجين أجهزة وتحاليل عشان نعرفها. ولما ينزل من أمه هيكون واضح كل حاجة.

1. CTG.
2. Cord ABG (fetal).
3. At birth: ↓ Apgar score.
4. Within 2 days: asphyxia.

	Mild	*Moderate*	*Severe*
Feeding	Impaired	Can't	X
Reflexes	Excessive	Abnormal	X
Seizures	X	±	Refractory
Movement	Normal	Abnormal	No movement

➔ *Investigations:*

1. Prenatal: biophysical profile/US.
2. Perinatal: ABG/Apgar.
3. Postnatal: Lab/Radiology.

➔ *Treatment:*

1. Anticonvulsants.
2. Hypothermia ttt.
3. MOSF ttt.

---

5. Jaundice:

➔ *Causes:*

A. Physiological:

Premature: RBCs, liver, GIT.

B. Pathological: indirect

1. ↑RBCs destruction:

a. 1st day: ABO-RH, G6PD.
b. Sepsis, TORCH.
c. Extravasated blood.
d. Polycythemia.

2. Defect in detoxification processes:

Liver: Y-Z protein, conjugation enzymes, EHC.

Rh:

- Mother Rh –ve.
- Baby Rh +ve.

ABO:

- Mother: O.
- Baby: A, B, AB.

➔ *Treatment:*

1. Induction of labor.
2. Blood: exchange, transfusion.
3. Anti D, A, B globulin.

➔ *Jaundice assessment:*

Time, History, Examination & Investigations.

1. Time:

- 1st: ABO, Rh.
- 2nd or 3rd: physiological jaundice, polycythemia.
- 4th – 7th: sepsis, Criggler-Najjar.
- 2 weeks: pathological: enzyme, hormones, cholestasis, hypothyroidism.

2. Examination:

1. Skin color: yellow, pale.
2. Size: microcephaly, omphalitis, hepatomegaly.
3. CNS: lethargy, poor feeding, kernicterus.

3. Investigations:

A. Prove jaundice:

Bilirubin (total, indirect).

B. Prove the cause:

1. Infection → hemolysis:

a. CBC: Reticulocytosis.
b. WBCs, ESR & CRP.

2. Hemolytic disease:

ABO, Rh, Coomb's test.

3. Hemolytic anemia:

a. Osmotic fragility test.
b. Enzyme assay.

4. T_3 & T_4.

4. History:

سؤال للعائلة.
سؤال للطفل الأكبر.
سؤالين في الحمل.
سؤال في الولادة.
سؤال في الرضاعة.

➔ *Treatment:*

1. Monitor.
2. Prevention.

3. Phototherapy.
4. Exchange transfusion.
5. Pharmacologic therapy.
6. Treatment of the cause.

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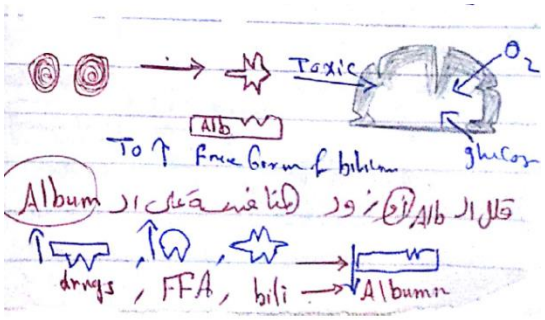
6. BIND:

➔ *Risk factors:*

↑ hemolysis → ↑ bilirubin (duration, conc. & free form) + ↓ brain glucose & O_2.

➔ *Causes:*



➔ *Clinical picture:*

A. Acute:

Early, intermediate, advanced (according to symptoms not time).

- Early: ↓ activity & ↑ cry.
- Intermediate: ↑ Hypertonia + ↑ Mortality + ↑ Encephalopathy.

B. Advanced: نهايته سودا

- Opisthotonus, cry, apnea, seizures, coma & death.

➔ *Chronic kernicterus:*

1. Deafness صمٌ.
2. Athetosis بكمٌ.
3. Limitation of gaze عميٌ.
4. Mental retardation فهم لا يعقلون.
5. + Dental dysplasia.

➔ *Treatment:*

Phototherapy + Blood exchange + Monitoring.

---

7. RDS:

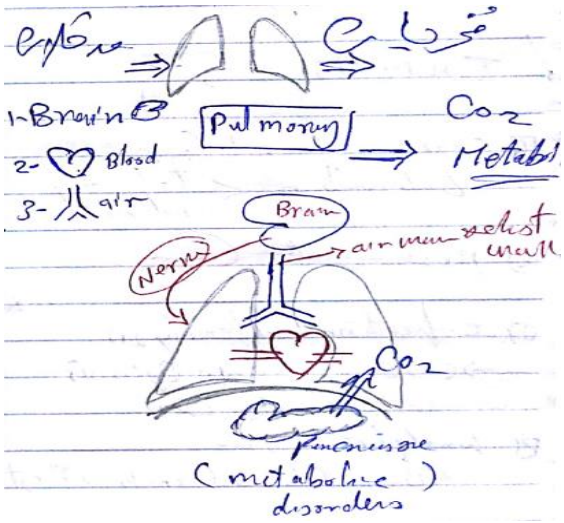
➔ *Causes:*

1. *Pulmonary.*
2. *Extra-pulmonary.*

A. Pulmonary causes:

- 3 diseases don't open lung.
- 3 diseases don't close lung.
- 2 diseases destruct lung.
- 3 diseases destruct lung from outside.

B. Extra-pulmonary causes:



➔ *Factors that increase risk of RDS:*

1st: Premature.

أم عندها السكر حامل في ٢، واحد مات والتاني ناقص، والدكتور ولدها قيصري.

➔ *Factors that decrease risk of RDS:*

1. HTN mother.
2. Premature rupture of membranes.
3. Steroids & T_4.

أم الضغط عِلي عليها، فرقع الmembranes وزود الsteroids.

➔ *Clinical picture:*

سهلة.

➔ *Complications.*

Hemorrhage, Air & Fibrosis.

= Hemorrhage, barotrauma & chronic complications.

➔ *Treatment:*

Monitor + symptomatic ttt + specific ttt.

A. Monitor:

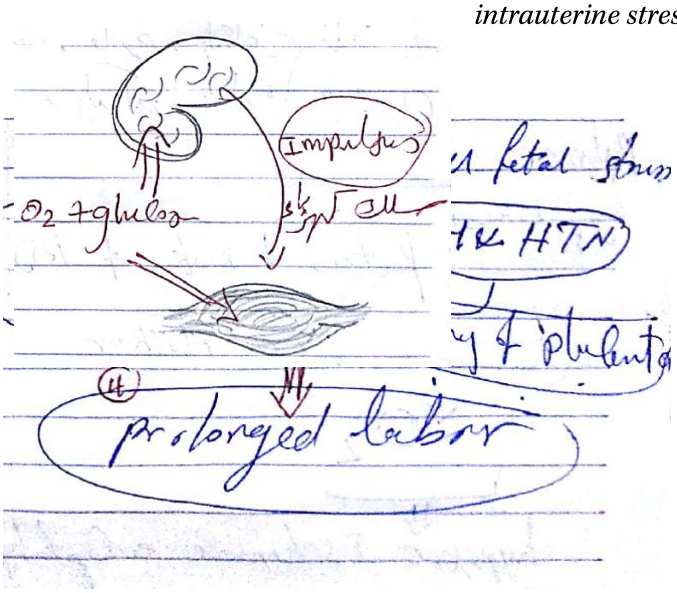
1. Vitals.
2. O_2.
3. Gases.
4. Blood.
5. Parameters.

B. Symptomatic ttt:

Correction of hypoxemia.

C. Specific ttt + life support.

Risk factors of intrauterine stress:



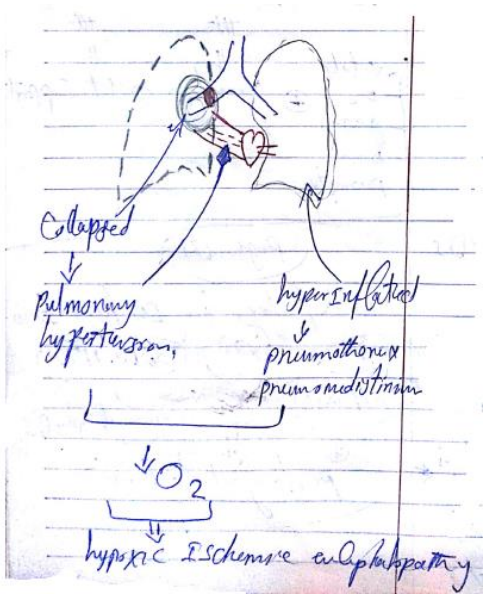
8. Meconium aspiration syndrome.

➔ *Clinical picture:*

As RDS.

1. Inspection: grade I, II, III or IV.
2. Auscultation: ↓ breath sounds.
3. Stained skin by meconium.

➔ *Complications:*



Apnea:

Stopping of respiratory movements > 20 seconds.

Movement = Neuromuscular junction. So Causes:

1. Premature brain or muscles.
2. Defect in brain or muscles or nerves.

So:

So, 2ry causes:

- Metabolic (↓ glucose).
- Hypoxic (↓ oxygen).
- Toxic (damage).
- اقطع سلوك الكهرباء.

Metabolic:

- Hypoxic: hypoxia, seizures, temperature.
- Toxic: hemorrhage, sepsis, drugs.

اقطع سلوك الكهرباء:

- Gastro-esophageal reflux.
- With ETT or suction.

➔ *Treatment:*

Monitor + symptomatic ttt + specific ttt.

1. Monitor: HR, RR.
2. Symptomatic: pharmacologic, CPAP, IMV.
3. Specific ttt of the cause.

---

9. Hypoglycemia:

➔ *Causes:*

Glucose + insulin → ATP.

➔ *For hypoglycemia:*

↓ glucose sources.
↑ insulin.
↑ consumption or demand.

A. ↓glucose sources:

- IUGR.
- ↓uptake.
- Metabolic errors.

B. ↑insulin:

- IDM.
- Islet cell hyperplasia.

C. ↑consumption:

- Serious illness: sepsis, shock, asphyxia.
- RDS, hypothermia, polycythemia.

10. Hypothermia.

↓ Insulation.

↑ Auto-consumption.

A. ↓Insulation:

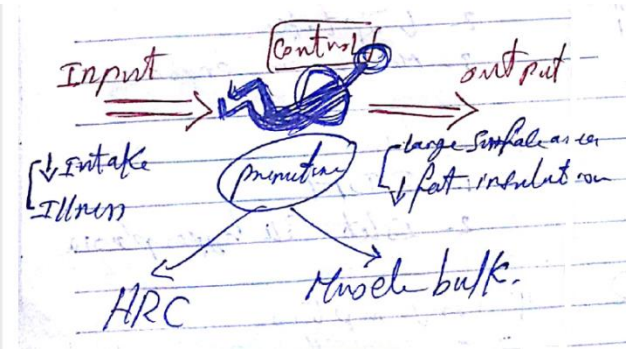
- Cold environment.
- ↓ drying at birth.
- ↓ clothing.

B. ↑Auto-consumption:

- Sepsis.
- Prematurity.

➔ *Clinical picture:*

Hypothermia: VC (peripheral & pulmonary)/↓ CNS/↓ BMR.



كانوا زمان في عمليات المخ والأعصاب بينزلوا درجة حرارة المخ 5 – عشان يعرفوا يشتغلوا.

---

11. Infants of diabetic mothers (IDM).

Intrauterine.

DM → CS.

↑ Glucose: macrosomia, birth injury or abortion, congenital heart diseases.

↑ Insulin: polycythemia → jaundice, hypocalcaemia & magnesemia.

Macrosomia:

CS.

RDS, TTN.

↑ Insulin:

Hypoglycemia.

Hypocalcaemia & hypomagnesemia.

CNS.

In general: diabetic mothers → aging of placenta.

So, DM → IUGR.

---

12. Neonatal sepsis.

➔ *Risk factors:*

A. Neonate:

- ↓ weight (2).
- ↓ intake (2).
- Male.

B. Mother:

- Sepsis: fever & leukocytosis.
- Local infection (2).
- Hidden infection (2).

C. Personnel & equipment.

➔ *Clinical picture:*

Not doing well + Any hypo or hyper:

- Glycemia.
- Thermia.
- Pnea.
- Cardia.
- Intake (vomiting, distension).

+ Jaundice.

+ Complications: EP, DIC, shock, bulging anterior fontanel.

➔ *Investigations:*

1. Leukocytosis, neutrophils, immature neutrophils.
2. CRP.
3. Blood culture.
4. Other cultures.

➔ *Treatment:*

PRDS

1. **P**rotocol.
2. **R**outes.
3. **D**uration.
4. **S**tart (when we start?).

➔ *Prevention:*

↓ risks:

- Caregiver (2).
- Incubator (1).
- Contact (2): (breast feeding & uncover cord).
- Invasive (2): control IV lines & equipment.

-➔ *Supportive & monitoring:*

A. Monitors:

1. Vitals.
2. Gas.
3. CBC.
4. ABG.

B. Supportive:

1. Temperature.
2. Blood, Acidosis, ...

Cardiology

1. Hypertrophy

ASD → RVH

VSD → bilateral VH but mainly left VH

PDA → left VH

---

2. Treatment of cyanotic spills (central cyanosis)

1st → O_2 + IV fluid
2nd → Bicarbonate IV
3rd → Squatting (knee chest position) } O_2
4th → MV

5th→ α agonist to + TPR
6th→ β blocker to relax infundibulum constriction } CVS
7th → Morphine – pain

3.

	Fallot's	*TGA*
Examination 1-General		
Central cyanosis	1-2 months	At birth
Cyanotic spills	Appear on crying	Appear in 1-2 days
Dyspnea	✓	✓ fever
Repeated chest infection	✓	✓ fever
Clubbing of fingers	✓	مش هيلحق
Hypoxia test	X	✓
2-Local Inspection	Slight pericardial bulge (RVH)	Huge pericardial bulge (RVH)
Palpation	Systolic thrill over pulmonary area	No thrill But ?? after Rashkind balloon atrial septostomy
Auscultation	• No murmur in (hyper cyanotic spells) • Murmur (ejection Harsh systolic murmur) • S2 (A2) aortic component	• No murmur due to heart lesion • Murmur after Rashkind balloon atrial septostomy due to mixing blood • Single S_2 (A_2) due to anterior replacement of aortic artery

---

4. 1st line of emergency of central cyanosis at new born is Prostaglandin

---

5. Infective endocarditis (treatment)
- medical / ABs ttt 2-4-6
- Sugery / Absolute- Relative

---

6. Rheumatic fever (treatment)
- (arthritis) = 4 weeks Aspirin (4)
- (mild Carditis) = 8 weeks (2 x 4)
- (sever carditis) = 10 weeks steroid + 6 wks Aspirin (2 x 8)

---

7. Aortic coarctation treatment:
    - من بره >>>graft insertion.
    - من جوه >>>stent
    - من الجدار >>>resection

---

8. Aortic stenosis treatment
    - من جوه(1st line) Balloon valvoplasty
    - Valve من ال>>>valvotomy
    - من بره, valve replacement

---

9. Wide fixed splitting of P2
- P_2 is changed in expiration and inspiration
- But in case of ASD there will be pleural effusion so lung resistant and so pulmonary pressure will be equal in inspiration and expiration
- So it's fixed
- Also splitting ?? wide due to delayed closure of pulmonary valve after aortic valve

---

10. Murmur of PDA → continuous

---

11. 1st year of life Average BP= 85/50 mmHg

---

12. Pan systolic = holosystolic murmur.

---

13. ejection systolic murmur on pulmonary area is:
- Fallot's tetralogy due to defect in pulmonary stenosis

or
- Atrial septal defect due to increase in blood volume in right ventricle

---

14. A cyanotic congenital heart present when there is left to right shunt

---

15. Cyanotic disease of heart:

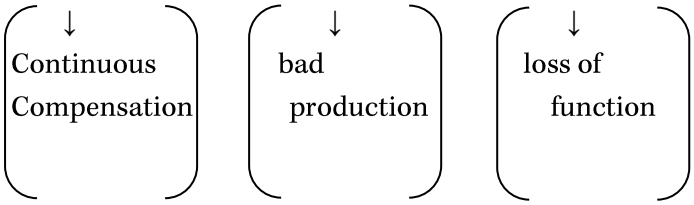
- without shunt → TGA

or

- with shunt → right to left = TOF

Hematology

1. **Chronic hemolytic anemia**



➔ *So, C/P:*

- General c/p of anemia= loss of function
- ad production → red urine, jaundice, →deposition ➔ wall, core.
- Continuous compensation:
    - Auto compensation
    - Doctor compensation 'Blood transfusion'

➔ *So, Investigations:*

- Anemia →CBC
- Type: blood film – x-ray and blood chemistry
- Causes → stool and urine analysis, endoscope.
- Investigation to know type:
  Blood chemistry (bilirubin indirect) Iron& T1Bc α ferritin.

➔ *Complications of CHA:*

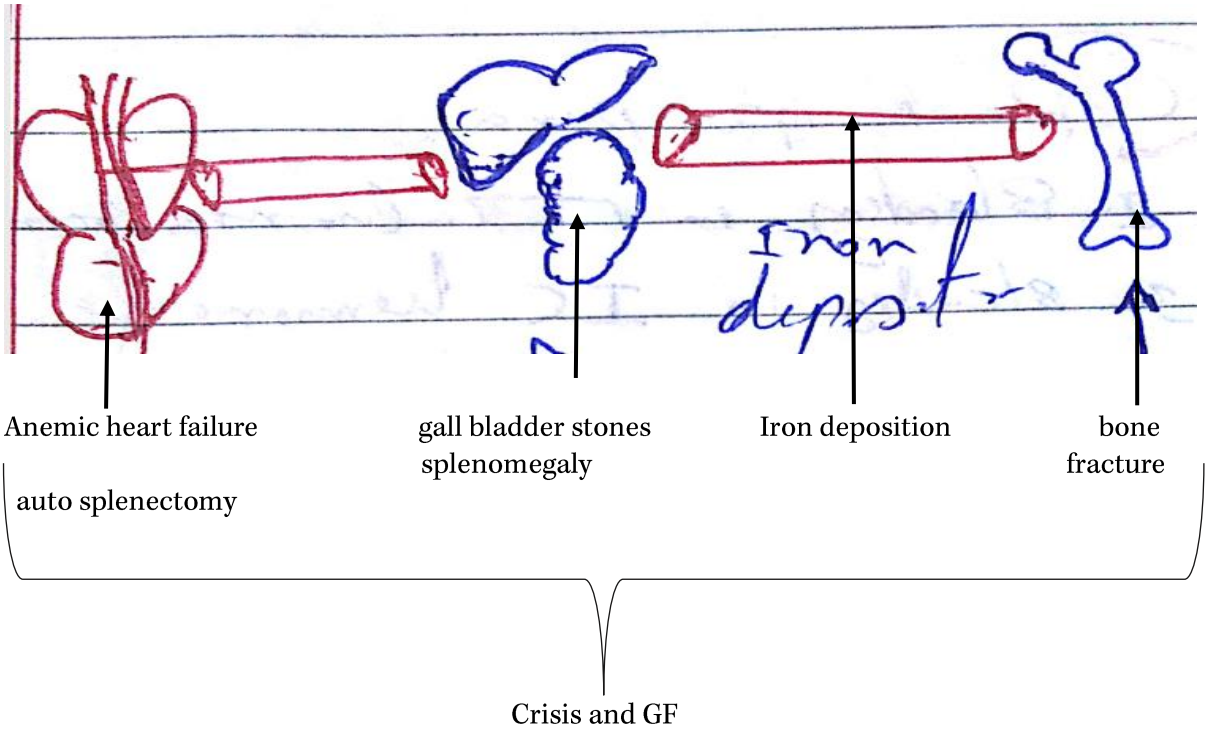
1. Complication of blood transfusion.
2. Organomegaly → hepatosplenomegaly & auto splenectomy
3. Bad production of iron deposition
    - Core → Bv (cirrhosis) GB (stone)
    - Wall → hemosiderin.
4. Loss of function:
Heart failure, growth failure, delayed puberty and easy fracture of the bone.

➔ *How to prove hemolysis:*

- CBC "blood film"
- Reticulocytosis
- Blood chemistry.

---

2. Complications of CHA



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3. Thalassemia انيميا البحر المتوسط

➔ *Investigations:*

- CBC
- Blood film (نفرقهم عن بعض ونصورهم) عشان اعداد كتيره جدا
- Electrophoresis
- Genetic study

➔ *Treatment:*

3 S + RBCs

1. Supportive
2. Splenectomy + Blood transfusion (+Chelating agents)
3. Synthesis of Hb
   - Medical: hydroxyurea
   - Surgical:
     1- bone marrow transplantation
     2- gene therapy

- Supportive ttt → BCDEF
  H**B**V vaccine
  Ca++
  vit **D**
  Eliminate dietary iron
  Folic acid
- Packed RBCs
  10-15 ml/kg → 10-12 ml/dl (MCQ مهمه)
- Iron chelating agents:
  deferoxamine

deferiprone
Deferasirox

---

4. Sickle cell anemia

➔ Genetics: Gene no 6→7, glutamic by valine

➔ C/p of sickle cell anemia or thalassemia

Onset, course, complication + c/p of CHL

➔ V.C: ischemia in anatomical parts of the body: LL, UL, head, chest, abdomen and kidney.

➔ DD of acute hemolysis (3I):

1- Infection (Hus-relationships).
2- Inherited (G6PD- Wilson).
3- Immune (ABO- AIHA).

➔ DD of vasculitis: C 3 I

1- vit c deficiency
2- inherited
3- infection
4- immune

---

5. HSP

Area	Defects	
Lower limb	100% rash	3/4 joints
Abdomen	50%GIT	1/3renal
CNs	Fever	ICH
Testis	Hemorrhage	Swellings

---

6. Leukemia TTT:

➔ Induction of remission (AVPC):

- asparaginase
- vincristine
- prednisone
- cytarabine

➔ Maintained dose (2M) : methotrexate, mercaptopurine .

➔ Intrathecal = (SMC) (سمك)

- Cytarabine
- steroid
- methotrexate

➔ bone marrow transplantation

---

7. Hemophilia A:

➔ *c/p*

تحكى قصه حياته من أول الولادة

- Bleeding in circumcision
- Hematoma in minor trauma. بدأ يتعلم المشي وكل شويه يقع
- Hemarthrosis. اول ما مشى رجله ورمت
- Bleeding from orifices.
- Internal hemorrhage "on complication"
- Intramuscular hemorrhage "on complication"

➔ *Complication:*

- Intra Cranial hemorrhage
- Psoas hematoma
- Ankylosis.
- + Complications of ttt.

➔ *Any investigation in any bleeding disorder*

- CBC
- bleeding time
- Clotting time
- detection of clotting factors

➔ *TTT:*

1. In mild case:
   - cold compression
   - desmopressin
2. In severe cases: replacement therapy.
   - Cryoprecipitate
   - purified
3. Physiotherapy for all.

---

8. ITP

➔ *Clinical picture:*

1- Purpura
2- Bleeding in mucous membranes
3- Bleeding in IC haemorrhage

التشخيص
thrombocytopenia + antiplatelets Ab
لكن مفيش تشخيص بدون
bone marrow examination (Very important)

➔ *Treatment:*

- Mild cases:
  1- follow up
  2- avoid trauma and salicylates
- In moderate cases:
  1- prednisone
  2- IVIG

- In severe cases:
  1- prednisone
  2- IVIG
  3- plasmapheresis
  4- platelets + plasma
  5- splenectomy
- In chronic cases:
  1- prednisone
  2- IVIG
  3- immunosuppressive therapy
  4- splenectomy (75% curative)

الحل الوحيد في الحالات ال:chronic
remove your immunity:
immunosuppression/ splenectomy

In severe cases (cause of severity) الحل الوحيد انك تشيل السبب
cause of damage → splenectomy

---

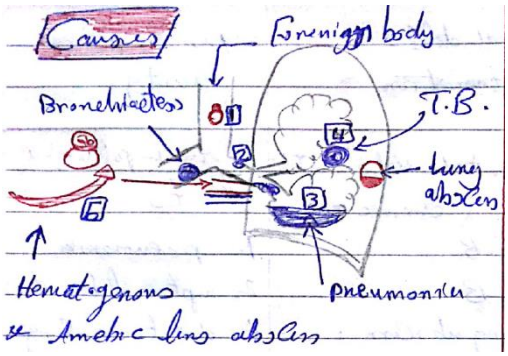
9. Aplastic Anaemia

➔ *Congenital:*
- Prolonged survival (androgen and corticosteroids)
- Bone marrow transplantation is Treatment of choice

➔ *Acquired:*
- Mild: anti-thymocyte globulin ATG or cyclosporine
- Severe: BMT or immunosuppression

Respiratory

1. Lung Abscess



➔ *Causes:*

1. Foreign body aspiration
2. Secondary to:
   a. Bronchiectasis
   b. Pneumonia
   c. T.B.
   d. Metastatic lung disease

١) trachea → 2) bronchi → 3)alveoli (foreign body → bronchiectasis → pneumonia)
4) parenchyma → Blood vessels (hematogenous + lymphatic)

   e. Amoebic lung abscess

➔ *Clinical picture:*

A. Symptoms:

4. toxemia (pus)
5. cough with sputum + blood

B. Signs:

bronchial breathing

➔ *Complications:*

Rupture + fibrosis →suppuration ثابتين في أي
(spread + bronchiectasis)

➔ *Investigations:*

- Any chest disease → chest X-ray
- Any abscess → culture and sensitivity

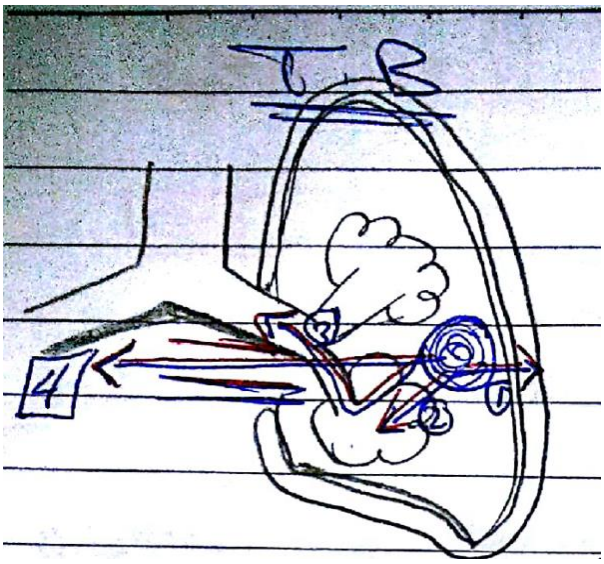
➔ *Treatment:*

Any abcess:

- AB
- drainage
- surgical correction

---

2. Pulmonary Tuberculosis



Spread to spaces → *Pleura*, *Alveoli*

Spread to bronchi

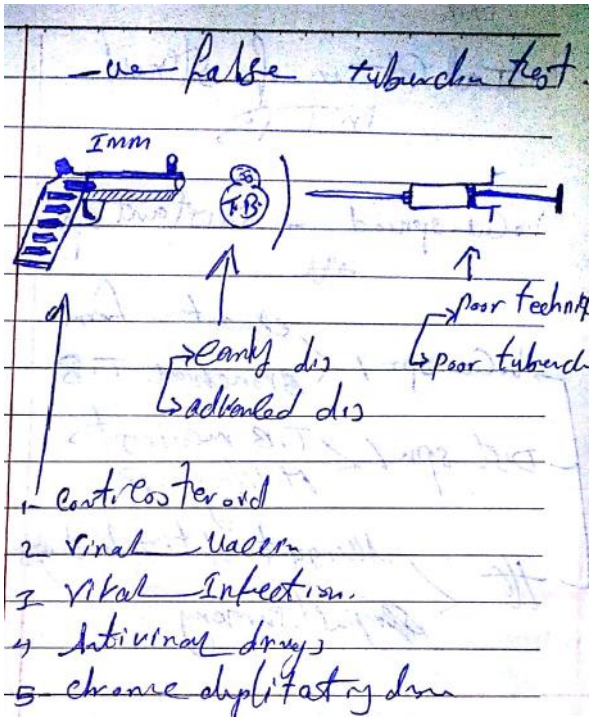
Spread in blood vessels

➔ *Clinical picture:*

- *1ry focus:*
  no symptoms or signs
- *2ry focus: (active 1ry focus) :*
  - *A. Symptoms:*
    1. T.B. toxemia
    2. cough + sputum
    3. history of false diagnosis as pneumonia
  - *B. Signs:*
    1. pleural effusion
    2. pneumonia
    3. fibrosis
    4. compression

➔ *false -ve tuberculin test*

1- early disease
2- advanced disease



3- poor technique
4- poor tuberculin

5- corticosteroids
6- viral infection
7- antiviral drugs
8- chronic debilitating disease

➔ *Isolation of organisms through gastric aspirate:*

1. ZN stain
2. Culture → Lowenstein Jensen → BACTEC
3. Test → QuantiFERON TB
   ELISA
   PCR

➔ *Indication of steroid in TB :*

1- Local spread

- Exudative form
- Bronchial TB

2- Distal spread:

- TB meningitis
- Military TB

3- Treatment:

- Allergy to anti-tuberculous drugs
- Post-surgery

- Commonest organism in common cold (rhinitis) → rhinovirus
- Commonest organism in pneumonia → pneumococci
- Most cases of bronchitis resolve spontaneously
- Bronchodilators are not effective in bronchiolitis
- Bronchitis → dry cough → then → productive cough → then → dry cough
- Pleural effusion & lung abscess present as a complication only in case of staph pneumonia
- Finger clubbing associated with suppurative lung disease
- Tuberculin test appears after 2-3 days (24-72 hrs.)
- INH → Drug of choice in TB & causes → jaundice
- IgE is not essential for diagnosis of bronchial asthma as there are 2 types IgE related BA/non-IgE related BA
- Respiratory syncytial virus → intracellular (interstitial pneumonia) → wall of bronchioles → constrictions → wheezes
- wheezes → may be in laryngitis if the cause is RSV
- Life threatening conditions = causes of stridor + causes of RF
- Extrinsic asthma = pollens, mites, house dust/ hereditary/ IgE
- intrinsic asthma = infection, smoke, emotional, viral, exercise.
- Tonsillectomy indications:
    1- chronic tonsillitis
    2- peritonsillar abscess
    3- tonsillar abscess
    4- recurrent acute tonsillitis more than 4 times per one year
- Atypical pneumonia = mycoplasma & TB pneumonia
- Peak age of acute bronchitis → 6 months of age
- Bronchiectasis predisposing factors are chronic causes
- Commonest cause of wheezes in:
  children → bronchial asthma
  infancy → bronchiolitis

---

3. **Suppurative Lung Disease**

	Lung abscess	*Bronchiectasis*	*Emphysema*
Definition	Suppurative destruction of lung parenchyma → cavity+ pus	Bronchial dilatation→ pus stagnation	Pus in pleural cavity
Causes	- Aspiration of foreign body - 2ry to 1- pneumonia 2- bronchiectasis 3- TB 4- amoebic lung abscess 5- metastatic lung abscess	- Congenital malformation - Acquired chronic infection: 1- F.B. 2- T.B. 3- lung abscess 4- immotile cilia syndrome 5- cystic fibrosis 6-GERD	Sterile potential space 2ry to: 1- pneumonia 2- rupture of lung abscess 3- chest trauma/surgery 4- mediastinitis 5- sub diaphragmatic abscess
Symptoms	- Pus, toxemia: fever, anorexia, weight loss, clubbing of fingers - Cough + sputum: copious, purulent, foul smelling with postural variation and haemoptysis		- FHMA - Chest pain(dyne): ↑ cough ↓ lie on the affected side
Signs	- Inspection: ------ - Palpation: ----- - Auscultation→ localized bronchial breathing	- Inspection: ------ - Palpation: ----- - Auscultation: patchy bronchial breathing + coarse crepitation near the affected region	- Diminished air entry - Dullness - Diminished breath sounds
Complications	- Rupture → spread - fibrosis→ bronchiectasis	- rupture →growth failure - fibrosis → RF	- rupture → fistula - fibrosis → chronicity
Investigations	- X-ray - sputum culture - bronchoscopy	- X-ray - CT	- X-ray - pus culture - thoracentesis
Treatment	- AB 4-6 ms - Drainage (physiotherapy) - Surgical correction - Bronchoscopy in case of F.B.	- AB 4-6 ms - Drainage (physiotherapy) - Surgical correction - Bronchodilators	- AB 4-6 ms - Drainage chest tube - Surgical correction - Modified AB according to culture

4. Cystic Fibrosis

	Pancreatic	*Biliary*	*Respiratory*	*Immotile cilia syndrome*
Symptoms in infancy	Non-digested meconium → accumulation → meconium ileus→ accumulation→ rectal prolapse	Prolonged neonatal jaundice **irritation to hepatocytes**	Accumulation of sputum → recurrent chest infection	
Children	Non-digestion → non-absorption→ steatorrhea → failure to thrive	chronic hepatitis	chronic → bronchiectasis/ emphysema **rupture**	Nasal polyp Sinusitis
Adolescents	No digestion → no absorption → no insulin secretion (DM)	cirrhosis + portal HTN	pneumothorax or recurrent haemoptysis	Sterility in male

GIT

- Any congenital abnormality in the GIT appears before 1 month.
- Neuroblastoma < 3 years.
- Wilms` tumor (Nephroblastoma) ≥ 3 years.
- Vomiting → alkalosis.
- Diarrhea → acidosis.
- ORS 150-300 ml/kg/day.
- hypokalemia → abdominal distention – paralytic ileus-
- convulsions → sweating – hypernatremia – dehydration
- ORS in all diarrhea & dehydration except shock
- Parvovirus → commonest virus in respiratory infections.
- Retrovirus → commonest virus in GIT infections.
- Vomiting after period of 2 months → CHPS.
- Diarrhoea at period of weaning → celiac disease.
- GRD during 1st year of life.
- Low grade fever in GE → Rotavirus.
- DKA → acute abdominal pain
- Source of infection of Monilial stomatitis [Nipples, Perineum] of the mother
- We don't give Anti-mobility drugs in diarrhea if gastrointestinal infection exists: -
  1- Will increase bacterial stasis.
  2- Will increase toxin absorption.
  3- Will increase epithelial damage.
- RE → Bleeding → intussusception.
- CHPS الشبسي كله املاح = بيبوظ املاح الجسم
  - So, electrolyte imbalance so we do serum chemistry
  - & so, we should correct blood chemistry before surgery not emergency surgery
- CHPS
  Four Fs
  - Male to female = 4/1
  - more in first born boy
  - positive family history
- - multi factorial

سيناريو

-CHPS-

الام هتقولك : الولد جعان على طول أول ما يأكل يرجع و جسمه خاسس

➔ *Test feeding* → visible peristalsis الدكتور حضرتك هتعمل
Olive-like mass

➔ *Investigations*: احنا قلنا الشيبسي كله املاح هيبوظ كيمياء الدم
  - U/S – Barium meal
  - Serum chemistry

➔ *TTT*: - 1st correct serum chemistry

- Small GIT obstruction → Volvulus.
- Lower GIT obstruction → Intussusception

Hepatology

1. Portal HTN > 12mmhg	
Causes	- prehepatic - hepatic {sinusoidal} - post hepatic
c/p	Collaterals. bleeding, Ascites, splenomegaly. - Ascites: post hepatic or post sinusoidal to occlude the flow (tall columnar) - Splenomegaly: prehepatic or hepatic - Prehepatic or hepatic→ still low pressure so fragile organs can compensate - Post sinusoidal or post hepatic →high pressure So larger surface area & organ can compensate
Investigations	Vascular disease due to hepatic cause - endoscopy → VARICOSE - CT, MRV - DOPPLER & US + HEPATIC causes 1- Liver function ALT, AST, CBA 2- MARKERS& TORSH SCAN 3- TMS 4- autoimmune enzymes 5- liver biopsy
Management	Bleeding →IV fluid →vitK, plasma, blood Endoscopy→ vasopressor infusion Sclerotherapy & band ligation Surgery →TIPSS →PSS **PREVENTION OF BLEEDING** 1ST attack 1- Avoid ASPIRIN &NSAI 2- BB 3- Protective endoscopy Re-bleeding

	1-BB 2-PROTICTIVE ENDOSCOPY 3-TIPSS 4-PSS 5-LIVER TRANSPLANT

2. CHOLESTASIS	
Causes	- Hepatocellular 1- Idiopathic 2- Inflammatory 3- Metabolic storage - Intrahepatic duct →familial Cholestasis - Extra hepatic duct → EHBA & choledochal cyst.
C/P	- Weight →NORMAL in EHBA →decrease in congenital and inflammatory - Specific to the cause
Investigations	- LIVER function - Prove cholestasis - Prove the causes and complications - 5 steps diagnosis 1- INV treatable conditions 2- TORSH screening 3- OTHER METABOLIC conditions 4- U/S 5- Differentiate BETWEEN CHOLLEDOCAL CYST & HEPATITIS by LIVER BIOPSY and HID Scan
TTT	- Replacement therapy - Displacement surgery - Symptomatic 1- Pruritic 2- Varicose 3- Encephalopathy 4- Growth failure - Liver transplant

3. Hepatology classification

- 2 infections (acute or Chronic) = {ABCDEF}
- 2 obstructions
  - طالع : PORTAL HTN CAUSES {PREHEPATIC, HEPATIC, POSTHEPATIC}
  - نازل : Cholestasis: causes {hepatocellular, intrahepatic obstruction, extrahepatic obstruction}

---

4. **Cirrhosis**
   1- chronic hepatitis {liver}
   2- Cholestasis نازل hepatocellular and ductal
   3- Congestive طالع heart failure

---

5. Acute liver failure

Functional liver failure

1- SYNTHESIS
there will be deficiency in:

- Albumin
- Clotting factors
- Billirubin

2- DETOXIFICATION
there will be increase in blood level of:

- Drugs
- Urea
- Toxin

3- REMOVAL
there will be increase in blood level of:

- CHOLST
- Bilirubin
- BILE Secretion

Neurology

1. **Acute muscle weakness**

   Guillain barre syndrome

➔ *Definition:*
GIT infection → auto Abs attached to myelin sheath → polyneuritis → acute loss of motor function.

➔ *Incidence:*
GIT infection → GBS 50% of child disease (Most common cause of acute paralysis of children).

GBS → GPS (Maps)

Longest Nerve (LL) → Trunk → All nerves

مصر → القاهرة → الدقي

➔ *Examination:*

- Motor → Ascending symmetrical
- Sensory
- Autoimmune

➔ *Investigation:*
Diagnosis (clinical)+General look

➔ *Management:* (respiratory-CVS- CNS)

- Respiratory (ICU- Mechanical ventilation)
- CVS (IVIG- plasmapheresis)
- CNS: physiotherapy

➔ *Focus on:*

1) Acute LMNL
2) Paradoxical breathes
3) Bulbar paralysis
4) Symmetrical weakness.

---

2. **Progressive muscle weakness**

   I. Duchenne muscular dystrophy

➔ Most common & most serious muscular dystrophy

➔ *Diagnosis:* CPK- Gower signs
Search for mother family history (X linked recessive disorder)

➔ *C/P:*

1. Hypotonia (gridle (pelvic- shoulder)- trunk)
2. Cardiomegaly
3. Pseudo hypertrophy

4. Mental affection
5. Skeletal deformities

II. Floppy infant

➔ *Clinical:*

- Limbs: frog legs
- Trunk: curved
- Head: lag

III. Werdnig Hoffman

- Worm like movement
- Can't sit or walk (But grade II can sit) and (Grade III: delayed walk paralysis)

➔ *c/p*:

disease of spinal cord so:

- normal mentality
- normal eye movement
  - Prenatal:
    - Diminished fetal movement
    - arthrogryposis
  - Perinatal
    - floppy infant
    - decreased tendon reflex
  - Postnatal
    - bulbar palsy
    - tongue fasciculation
  - Late
    - respiratory paralysis & RF

➔ *Investigations:*

Muscle:

- EEG
- biopsy
- molecular study

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3. MR

➔ *Causes:*

A. Hereditary

1. Chromosomal (number- structure) } بالوراثة
2. Genetic (microcephaly) }
3. Error of metabolism }
4. Neurodegeneration
5. Neuro-cutaneous

B. Acquired (prenatal – natal-postnatal)

➔ *Management*

1. Prevention
2. Mother (at home) (specific ttt-general)

3. Physiotherapy- Ortho therapy- speech- ophthalmology
4. Antiepileptic + educable child.

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4. CP:

➔ *Causes:*

1. Congenital
   a. Malformation
   b. infection
2. Acquired (prenatal – natal- postnatal) as MR.

➔ *C/P:*

Vague but suspected by

1. Mother (feeding- gagging)
2. Paediatrician (microcephaly- development)
3. Neurologist (abnormal limb tone- persistent neonatal reflexes)

➔ *Type of palsy:*

- Spastic (متخشب) (hypertonic- hyperreflexia)
- Atonic (مرخخ بس قوي الرفلكس)
- Diakinetic (زي الدودة)
- Ataxic (مرخخ و بيترعش و بيطوح)

➔ Complications *(muscle – chest- association)*

➔ *Investigation*:

- TORCH
- CT
- VEP

➔ *Management:*

- conservative (حاول تصلب جسمه)
- Treat Complications.

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5. Meningitis

➔ *Complications:*

Early → spread

Late → localization fibrosis

- Toxins (sensory & motor defect/ motor irritation epilepsy)
- Fibrosis (hydrocephalus)
- Mass Abscess pressure (empyema-ICP)

➔ *Treatment:*

Start by empirical therapy

	Duration	Ttt
Before 2 months	2 -3 w: neonate 7 – 10 days: 2nd month	Ampicillin Cefotaxime
Above 2 months	7 -10 days	Cefotaxime May be Chloramphenicol

+ steroid in H. Influenza (↓ hearing loss)

➔ *Notes:*

- Most common organism
  - GBS (Bacteria)
  - Enterovirus (virus)
- irritation signs: absent in infant 2- 18 months
- Chorea: involuntary movement involves proximal muscles which disappear during sleeping.
- H. Influenza meningitis (the only) → non-pyogenic meningitis → are given steroids.
- GBS, most common organism in neonatal meningitis

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6. Drugs used as DOC (Drug of Choice):

- Resistant seizure: lamotrigine
- generalized – absence: Na valproate
- absence: Ethosuximide
- myoclonic: Clonazepam

- Tonic- colonic seizure at the age 5-15 years
- Neonatal seizures are myoclonic & infantile spasm

Most common:

1. Cause of hydrocephalus: Aqueduct stenosis.
2. Cause of floppy infant: werdnig Hoffman
3. Cause of acute muscle paralysis: GBS
4. Cause of muscular dystrophy: DMD
5. Cause of bacterial meningitis →: GBS
6. Cause of viral meningitis: enterovirus

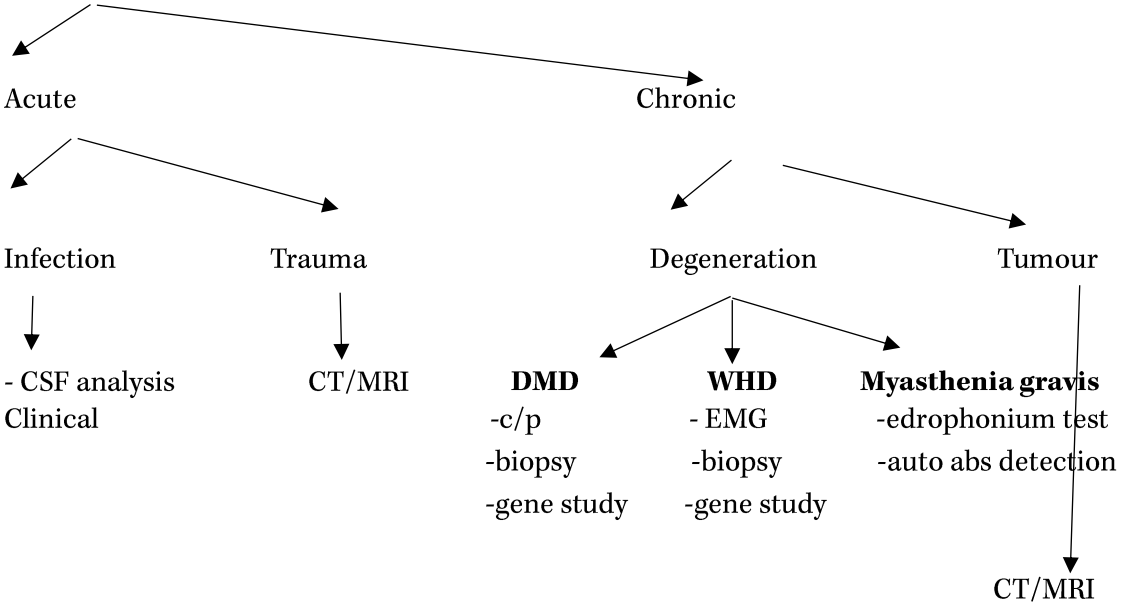
General notes:

- EEG in seizure
- EMG in GBS, DMD, WHD
- DMD & WHD we need muscular biopsy & genetic study
- Neonatal seizure prognosis (poor hypoglycaemia -hypocalcaemia)
- Typical febrile convulsion (normal EEG- generalized in nature)

- Any muscle weakness

↓ look for

Course



Endocrine

1. **DM**

	Type 1	Type 2
Incidence	90%	10%
Causes - genetic -autoimmune	Polygenes Yes	Polygenes No
Defect -insulin secretion -Insulin receptors	- No resistance	Variable Resistant
Result ketosis	Common	Rare
Ttt insulin dependence	Total	Uncommon

➔ *Pathophysiology*

Insulin (- glucose)

Insulin antagonist (+ glucose)

- growth hormone
- Glucagon
- Cortisol

There is balance between insulin and its antagonist So if there decrease in insulin ... insulin antagonist will work on many organs as

1- Liver → gluconeogenesis
2- Fat → ketosis
3- Muscle → gluconeogenesis

++ glucose → ++ketones

➔ *c/p:* ماء → polyuria, enuresis

نار → fever DKA

➔ *Complications:*

1. Acute
   - hyperglycemia→DKA, infections
   - hypoglycemia → من العلاج الزيادة

2. Chronic:
   Glucose bind to BM of BV
   So micro vasculopathy
   - Retina
   - coronary artery {IHD}
   - nerves

Plus

- A/autoimmune thyroiditis
- P/puberty delay
- C/celiac disease

➔ *Investigations:*

- DM
- DKA

➔ *DD:*

- Of DKA: Coma/Metabolic acidosis/Acute abdomen/Vomiting/Dehydration/RD.
- Of DM: Polyuria/2ry nocturnal enuresis/Failure to thrive/Immunodeficiency.

➔ *TTT of DM:*

1- Hospitalization
2- Insulin =DINRR, T / monitoring glucose
3- Diet
4- exercise

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2. **Puberty**

➔ *Manifestations:* سهلة ومهمة

1ST sign in

- Male: testicular enlargement
- Female: breast enlargement

Last sign in:

- Male: height spurt
- Female: menstruation (and gaining 5 cm height ملهاش لزمه. قولها في الشفوي بس)

SMR *(sexual maturity rating)* in female: {breast, pubic hair}

SMR in male: {pubic hair, testis & penis}

I. **Delayed puberty**

1- Constitutional
2- Low gonadotropin

Pituitary {systemic disease, starvation, hypothalamo-pituitary disease}

3- Testes {high gonadotropin}:
   a. anatomical = gonads damage
   b. functional {chromosomal, enzymes}

II. **Precocious puberty**

A. Only one character

1- premature thelarche, adrenarche

2- gynecomastia in male

B. All 2ry sexual characters

1- true {with gametogenesis} increases gonadotropin

2- false {without gametogenesis} increased estrogen or androgen

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3. **1ry Hypothyroidism.**

➔ *Causes:*

A. Congenital:

1- anatomical defect {maldevelopment}

2- functional defect

a- dyshormonogenesis

b- iodine deficiency

c- goitrogens

B. Acquired:

Hashimoto's

➔ *c/p:*

- *at birth:* no symptoms but screening
- *early*:

1- increase in gestational period

2- symptoms الولد بينام لحد ما اصفر من قلة الاكل

3- Signs راسه وايده وجلده وبطنه {APCD}

- *LATE: شيت الاطفال*

A- HISTORY →development

B- Examination

1- Measures

2- H&N

3- Limbs

4- Skin

➔ *Investigations:*

1- iodine assay

2- Thyroid u/s

3- Laboratory finding {T_3, T_4}

4- bone age x-ray

➔ *TTT:*

1- LIFE LONG THERAPY

2- MONOTRING

a- Develop

1- Motor

2- Mental

3- Puberty

b- Drugs {TSH- T_4}